

Computer News 80

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EDITORIAL COMMENT

It still amazes us that some people do not believe us when we tell them that CN80 is produced entirely on a TRS-80 Model 4 computer. But it is. Not only is CN80 created on a Model 4 but all of our printed catalogs, advertising text, flyers, program manuals, program covers, shipping labels and our weekly publications are also done on the Mod 4. We could even produce this work on a Model 3, if we wanted to.

We produce these publications and associated products without the aid of expensive scanners, high-hype desktop publishing programs and el-speedo computers, which again is high-hype and not high-tech. We have saved thousand of dollars in our operation by using this equipment and you can save thousands of dollars too, by staying with the Trusty-Reliable-Sensible-80s. Anyone who still wants to refer to these computers as Trash-80 should have their heads examined and their wallets devoured by the PC clone green-eating-monster. Sure, there is a place for the PC clone in the computer user's world, that is if you have a data base of several megabytes, with fifty thousand individual pieces of information on file that you need to search and call up item with immediate access ability. But, if you are writing the great American novel or the club news letter, you really don't need to have a fifteen hundred dollar investment in a computer and printer to do it.

We have several multi-task computer work stations, and several dedicated-task work stations going everyday at CN80. Each work station has its own computer, printer, external disk drives, and a couple have hard disk drives and laser printers added. My personal work station is a Model 4, which



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has functioned flawlessly for the past five years for 10 to 14 hours a day, seven days a week. I even hate to admit how many hours a week I have put in pounding away at this computer since the birth of CN80 and before. But the point is; taking into consideration the heavy investment we already have in computers, printers and associated equipment such as A-B switches, cables, paper stock and etc. to run this operation, we could easily have an investment five times that if we were using MS based equipment.

And yes Virginia, we do have a 286 Clone, with 40 meg hard drive, 3-1/2 drive and 5-1/4 drive complete with VGA monitor sitting over in one corner under dust covers. And it does get used on rare occasions, mainly to check out some of the high-hype MS programs that are advertised, to see if they are any improvement over the systems we have already established and have been using for years for mailing lists, and bookkeeping. So far, for our small business we have not found anything that we wanted to switch to. So it sits there under the dust covers. Funnier still, parked on top of the clone is our Mode 4P. We changed the drives in this Model 4P to one 5-1/4 double-sided 360K drive and one 3-1/2 720K drive and have it connected to our Panasonic Laser Printer. The Panasonic is a laser that prints 11 pages per minute, so the sole function of the 4P is to feed it information. We create the text at one work station, pull the disk out and put it into the 4P and walk away to do other things while it and the laser spits out 99 pages of what ever we are working on. Then we flip over the stack of paper with one page printed on it, and punch one button on the 4P and walk away again to do other things while it and the laser prints 99 pages of the next page. It does the same job that MS based equipment costing several thousand each, will do. Maybe our PC clone will someday get tired of playing Charles Atlas to our PC and collapse. If it does we will have one more interesting reason to report to you, for why we don't use it. In the meantime, as our office space is now becoming some what limited, we will continue to use it as a fifteen hundred dollar computer stand to hold our three hundred dollar Model 4P.

One other point to make is that if we hadn't invested in that PC clone, we would

not have known for sure that we were advising our readers correctly, having made the investment we now know our advice is sound.

One user who recently invested in a laser printer told us that he has come to realize that he can do much more, faster and easier, using his Model 4 with it than he can using his PC clone. Should we say - We told you so?

But you don't have to invest in a laser to take advantages of all these cost saving uses for the TRS-80 computers. If you have a particular application that you would like to set up and would like to have some suggestions on how to go about it, just drop us a line. Please include all the details. What computer do you have or want to use, what printer do you have, what DOS are you using, and what size drives do you have. Without all the information given the first time we have to write back to you asking for it. Please try to give as much detail as you can in your first letter, it will speed the process along greatly. -CN80

NEWS ITEMS

May 1, 1991: MISOSYS announced the release of LB Data Manager Version 2.1. This flatfile data base manager now sports ten field types, each of which can be edit or display protected, or established as a required entry. Data entry has been enhanced to allow duplicating fields from the previously-entered record, as well as forward and reverse field navigation. Flexible editing now incorporates global search and replace with wild-card character match and source string substitution. Up to ten index files may be created.

Flexible report generation provides for directing reports to the printer, display screen, or a disk file. Definable printer (de)initialization strings are supported. Numeric field averages and record counts have been added to existing (sub)totals in footer support. And a capability for generating external mail/merge files has been added.

Included maintenance utilities provide for data base restructuring, as well as duplicating existing structures, moving and copying records between data base files, and mass purging of records. A new 200-page User Manual has been produced.

LB Data Manager Version 2 is priced at \$99 plus \$5 S&H(U.S.). Upgrades from version 1 are \$40 plus S&H with return of the Ver. 1.0 Table of Contents Page.

Contact:
MISOSYS at 800-MISOSYS, (800-647-6797)
for details, or write:
Misosys Inc.
PO Box 239
Sterling, VA 22170-0239

Todd Roisum, Vice President of Marketing for Northstar Matrix-Serv Company has informed us that his company not only will repair print heads from any printer, including Radio Shack printers, but will also supply refurbished printheads that are identical to that of a new printhead and extends a 1 year warranty on their work.

Northstar has been in business for four years and is reportedly grown from six people to over seventy. They promise a two to three day turnaround for repairs on over 400 print heads. They also do other computer repairs and furnish spare parts. Repairable items listed in their information package include floppy drives, printer power supplies and boards, PC monitors, keyboards.

Contact:
NORTHSTAR MATRIX-SERV
7940 Ranchers Road
Minneapolis, MN 55432
(612) 785-1075
1-800-969-0009

And please tell them you saw it in CN80

REMINDER

If the last four digits on your mailing label is 91/06 - this is your last issue. It's time to renew your subscription.

TRSLINK UPDATE

Because of the pressures on his time from his academic responsibilities, Luis Garcia-Barrio founder and publisher of the TRSLINK disk-based electronic magazine dedicated to providing continuing information for the TRS-80 and Sysop of the TRSLINK bulletin board located in Philadelphia, PA, has given up the control and the publishing of the TRSLINK disk-based magazine. We wish to commend and thank Luis for his superb dedication to that project for the past three and a half years.

The future of TRSLINK now seems to be in the hands of several dedicated TRS-80 users who are trying to keep the TRSLINKs alive. As in any new venture it is a little rough getting things organized, but we hope that they are successful in their efforts and are able to maintain the high standard of information and support that Luis Garcia-Barrio put forth.

We now have issue #42 (edited and constructed by David Brown of Corvallis, OR). We understand that issue #43 is being edited by Peter Besenbruch of Mililani, HI. As of this printing we have not received issue #43 (May 1991). We will notify you when we do.

Please note that we have informed the new authors of TRSLINK that if they create issues that are compressed (arched), or programs within an issue that are archived that will not fit when un-arched on on single-sided, double-density 180K disks formatted with TRSDOS / LS-DOS, we will no longer be able to provide our distribution service on future TRSLINK issues. We have no wish to supply our TRS-80 users with anything that cannot be used by the majority of users and the majority still have single-sided drives in their computers. -CN80

TRSLINK issue #1 through #42 is available from CN-80 \$ 1.50 per issue, or two issues on floppy disks (any two issues per disk) at \$ 2 per disk.

For a limited time we will offer the complete set of 42 issues on floppy disks for \$ 31.50 plus \$ 4 S&H. (that's 75 cents per issue.) We will notify you in future CN80s when and if the 75 cents per issue will have to be withdrawn.

A VISIT WITH DAVID GOBEN

by David Goben

HYPERBNK, MOUSE DRIVERS, DESKJET FONT DRIVERS, USING MULTIPLE FONTS, MULTICOPIES WITH FONT DRIVERS, MODEL III/4 BACKUP PROTECTION, FBACKUP, FASTBACK, MULTIDOS, SCRIPT

HYPERBNK

A while back I introduced a program called HYPERBNK/CMD, which allows a Model 4 equipped with SuperMEM or HyperMEM (both from ANITEK) to utilize up to 32 banks of extended memory via the standard DOS @BANK function. This way extended memory applications, such as XMEMDISK, BCX, Busy-Calc, FBACKUP, PRO-WAM, and others could use their memory. In CN80 Vol 4 number 2 on page 9 I issued a patch to upgrade the program to Version 1.1. This is the version which was issued with BCX. Unfortunately this patch is incomplete. As patched, it will work OK with SuperMEM, but HyperMEM has trouble with it. What had happened was that as I was transcribing the patches, I forgot to add one patch line which would allow it to work correctly with HyperMEM. To correct this, you will have to add the missing patch lines.

Just to get everything even, if you have HYPERBNK/CMD version 1.0, apply the following patch by creating a FIX file. From DOS ready, enter BUILD HYPER1A/FIX, and type in the following lines (remember ohs [O] and zeros [0]):

```
.HYPER1A/FIX
.Fix Hyperbnk/cmd 1.0 to 1.2
D00,76=3E;F00,76=20
D00,A2=21;F00,A2=22
D01,0A=AF 3C;F01,0A=3E 01
D02,4A=32;F02,4A=30
.EOP----
```

Press the BREAK key to return to DOS Ready, then apply the patch using the command PATCH HYPERBNK HYPER1A.

If you have HYPERBNK/CMD version 1.1, build a FIX file caller HYPER1B/FIX, and enter the following lines:

```
.HYPER1B/FIX
.Fix Hyperbnk/cmd 1.1 to 1.2
D00,A2=21;F00,A2=22
D02,4A=32;F02,4A=31
.EOP----
```

A TALE OF TWO MICE

If any of you have picked up my Model 4 MOUSE driver and are per chance using a 2-button mouse, be sure that you have version 1.1.1. The version number will be displayed in the banner when you execute the mouse driver. This version has been out since November of 1990, and very few people had obtained one of the older versions, most of whom had a 3-button mouse, which it ran fine with from the start, anyway. If I recall, only 6 people got an older version before version 1.1.1 came out.

Be that as it may, I was interested in Matthew Kent Reed's mouse driver published in The MISOSYS Quarterly in issue V.iii. He was one of those 6 who got an older driver, and found that it would not work on his 2-button mouse. Being a programmer, he had an "itch" to see if he could fix the bug without reporting it. This is fine. Although I think he should have checked with me before being so quick to report to the world that there was a problem which he had a solution for (truth is, only one other person had such a problem, but I had it fixed with a simple, short patch), I still think he did an good job with his solution. True, from an average person's standpoint he was wasting his time in a big way, as the problem would have been easily solved with a small patch, but I can certainly understand his enjoyment at solving his problem on his own, and I commend him for it.

However, if anyone else who is less adventuresome finds a bug in a CN80 product, please do not hesitate to contact CN80 about it. Most bugs can be fixed in a jiffy, once they are known. Only rarely must a program be rewritten to accommodate newer technology. How many times have you seen a program run flawlessly for years, until you put a newer, bigger hard disk or peripheral on your system? Should the programmer be held

responsible? In most cases, no. How can they write for something that did not even exist when they wrote it? Or write for a system they had no way of testing? Only through the sharing of technical knowledge can we hope to bridge these gaps.

Back to mice. If any of you newer users of the mouse driver are using a 2-button mouse, you are aware that you must use the B2 parameter to specify a 2-button mouse. However, by applying a simple patch, you can cause my mouse driver to default to a 2-button mouse. You can do this by entering PATCH MOUSE/CMD (X'2631'=FF). Thereafter you can install the driver for a 2-button mouse by simply entering the command MOUSE. Of course, afterward if you wish to use a 3-button mouse with this patched driver, you will have to specify the B2=NO parameter.

MOUSE PROGRAM OFFER

By the by, if any of you get adventurous and want to write programs which use my mouse driver, you can do so and include a copy of my MOUSE/CMD program in your package as long as you follow these simple rules: 1) You have purchased at least one legal copy of my mouse driver from CN80. 2) The package is a commercial package (not shareware, public domain, or any other ware). 3) You obtain written permission from me (easy to get). 4) Once you receive permission, you must display mouse author credit in your documentation, program banner, or both as prescribed by my permission. 5) You do not alter or patch the driver in any way except if permission is granted for it. So if you follow these rules, you will not have to pay any royalty fees to me. Great. So what's keeping you from writing some great software using the mouse? Just imagine being the author of that great mouse-driven drawing program for hi-res? I will be glad to help you out on any technical points concerning the mouse.

DESKJET SOFT FONT DRIVERS

Yes, most of you are aware that I write laser soft font packages for Model III and 4 SuperSCRIPSIT, as well as Model 4 SCRIPSIT Pro. What these packages contain is the printer driver, the soft font downloading program, the soft fonts supported by the driver, and the JCL (or BLD for TRSDOS 1.3) files to automatically load the soft fonts.

In my last visit I said that I was trying to figure out how to support the DeskJet printers. The problem was that the DeskJet cannot save the current head position on an internal stack and "pop" it back off later, like it can on the laser printers. Well, the hunch I mentioned in that article paid off, and I have written my first soft font package for the DeskJet. As of this writing a lucky reader who uses a DeskJet is testing it. By the time you read this I should be able to quickly produce soft font packages for the DeskJet as you request them. More details will be provided as interest warrants.

USING MULTIPLE FONTS

Speaking of the soft font drivers, did you know that you can mix other fonts into your documents using these drivers? For example, I usually use a 14 point Helvetica bold font for my name in the banners of my letters (when I'm not scribbling them by hand on notebook paper or in margins). This is documented in the soft font driver's manual under "Using User Defined Print Codes", but I think some of you missed it. To illustrate my point, I'll describe how I set up both my SuperSCRIPSIT and SCRIPSIT Pro systems.

First of all, the printer drivers must have 3 font names reserved, which you should not use for naming additional fonts you may want to download into your printer. Font name 1 is reserved for selecting normal upright characters of the driver's supported font group. 2 is reserved for selecting bold (bold is emulated if not present). 3 is reserved for selecting italics (double underlining if italics not present). In the Set Up System submenu of SuperSCRIPSIT or SCRIPSIT Pro, under printer codes, I define code zero as 27 27. This will send two ESCape codes to the driver any time I type <CLEAR>0 -- that is, press the CLEAR key and then the zero key. This toggles microspacing (micro-justification) on and off. I reserve codes 1, 2, and 3 for "manually" selecting my "standard" soft fonts. Thus code 1 has the code sequence 27 40 49 88 0 to invoke font 1, the normal upright set. Code 2 uses 27 40 50 88 0. Code 3 uses 27 40 51 88 0. As you can see, each consecutive set increments the 3rd value. I continue font naming through code 9 following this manner. This allows me to select 6 additional fonts.

In my document, at the point I wish to change fonts, I first type <CLEAR>0 to turn off microspacing (justification). I then select my alien font. For example, suppose I downloaded 14 point Helvetica with a font name of 4 (enter DOWNLOAD without parameters to get help on using DOWNLOAD/CMD). Thus I would next enter <CLEAR>4, and then immediately start typing my text. Once done, I type <CLEAR>0 to reselect microspacing, and then reselect the currently operating font, which is usually font 1, by typing <CLEAR>1. Of course you may not want to do this in the middle of a line, as the right margin will be a bit ragged, but this technique works great for headings.

MULTICOPIES WITH FONT DRIVERS

A final note on my soft font drivers. When the driver initializes, it turns off any settings on the printer and resets it to its default start-up condition (except that it does not delete "permanent" soft fonts). If you wish to make multiple copies, it is much faster to select the number of copies from the front panel of the printer rather than from the print menu in SuperSCRIPSIT or SCRIPSIT Pro. Of course this reset foils such plans. If you wish to disable this so you can set up the printer and not have those settings reset, then you can apply a simple patch to the driver. For LDOS, use:

PATCH xxxx/CTL (D00,AF=5A)

where "xxxx" is the printer driver name, such as ROMN10. For TRSDOS/LS-DOS 6, use:

PATCH xxxx/CTL (D00,AF=5A:F00,AF=45)

Under TRSDOS 1.3, use:

PATCH xx/CTL (add=BB8F,find=45,chg=5A)

This patch changes the ESCape E (printer reset) command to ESCape Z, which technically cancels the display functions mode (the display of control codes), which the printer must be out of anyway to properly print text. Now you can make those 10 copies in 1/8th the time.

MODEL III/4 BACKUP PROTECTION

Model III's TRSDOS 1.3 and Model 4's TRSDOS 6 and LS-DOS 6 have backup protection features. Basically these

protection features consist of a single byte on the disk which tells the backup system how many copies it can make. The backup system also automatically updates this feature. As far as I know, LDOS and NEWDOS/80 do not have backup protection features. Correct me if I'm wrong. I do not know about other DOS systems.

With TRSDOS 1.3, the problem is in the BOOT sector on cylinder (track) zero, sector 1. Bytes offset 22 hexadecimal is the protection byte. By ensuring it is set to FF hex, this will remove any backup protection. Another patchable way around this problem is by installing the following patch on a backup copy of the system disk:

PATCH *7 (add=528A,find=DD7E00,chg=003EFF)

If the patch did not take, and your system disk has had patches applied to it in the past, then chances are this patch has already been installed. This will patch the system disk so that it will ignore the backup protection feature. Of course if you are using a disk in drive :0 which has not been patched, then it will check the backup status. Thus if you run out of backup copies, use a patched system disk to do further backups.

Got a Model 4 TRSDOS 6 disk which is backup limited, and you want to update the DOS to a newer version? There are 2 ways around doing it. First you can use FBACKUP to safely copy the files from the "protected" disk to a disk with a new DOS system in it. Unlike BACKUP, FBACKUP will not update the backup protection on the disk. In fact, if you use FBACKUP to copy the new DOS onto the "protected" disk, then the protection will be removed while the disk is at the same time being updated. But before you go about trying this method, you will first want to make a mirror image backup of the protected disk using ONEPASS or DISKCOPY, in case of some unforeseen disaster. Remember Murphy's Law.

The second method is to patch the disk. Use a disk utility, such as UTILITY4 on disk MD4UTL61 in THE FILE CABINET, and examine cylinder zero, sector 2 of the "protected" disk. Change whatever is at byte offset C6 to zero.

No, I am not promoting piracy by providing these patches. Most people who have software which contains backup protection are no longer supported by the vendors who sold them their program, such as PFS:File. Since the vendors are no longer in business (or care to offer support), the user must protect their investment somehow. This way they can make more security backups, as well as perhaps use the programs from their hard disks.

FBACKUP AND FASTBACK

Speaking of backup protection, the Model 4 FBACKUP is really starting to move. This is one utility that I am truly very proud of. I use it several times a day. At the end of each work day (night) I back up all my new data. This has saved my behind on numerous occasions.

I have been asked by a lot of people why I did not write FBACKUP as a hard disk backup utility. The reason I did not was because I wanted to support the BACKUP users with a much faster utility. Can you save those mega-big files using BACKUP? No. So there you have it. The verdict was in.

I have shied away from hard disk backup utilities because I could not find enough reason to produce something that would simply emulate something else which was already on the market. After all, why reinvent the wheel when MISOSYS already has those products? The one thing which would have made me change my mind was if I found a method which was extraordinary in comparison with current hard disk backup utilities. Well, recently I was solving a QuickBASIC program problem on my "PC" machine when the solution for TRS-80 hard disk backups struck me. In a matter of seconds the entire program system was developed. It's amazing how hard my subconscious mind works when I'm not aware of it. So now I am testing a program set called FASTBACK, which consists of 2 Model 4 programs: FASTBACK and FASTREST. With these you can backup and restore hard disk files with the ease and speed of using FBACKUP, which is 8 times faster than BACKUP. The advantage is that FASTBACK and FASTREST can back up files larger than the backup disks. This is great news to users who have large data bases or have lots of DiskDISKs or

SubDISKs in their hard disk partitions. Like with FBACKUP, with FASTBACK you can back up files in alphabetical order. You can also specify "partspecs", which is a partial file specification. If any file matches up with these parts, they will be copied. Thus you could specify all files which begin with "T" and end with a "/DAT" extension by specifying a "T/DAT" partspec. You can also specify date ranges, so that files which rest before, on, between, or after a range of dates will be moved. It can also move only those file which have been modified, include invisible files only if you specify it, and you can simply have it test to see how many disks it will take to do the backup. Finally, if you select the QUERY parameter, FASTBACK will ask you about all the files (at least those which meet the requirements of the optional partspecs and parameters) before any copying actually takes place. Thus the speed is amazing.

Unlike other backup systems, with FASTREST you can use partspecs to specify a class of files to be recovered, a date range, and even specify QUERY so that you will be asked about the files to restore to the hard disk. Let me tell you from experience, these features are worth their weight in gold.

In a recent benchmark test on My model 4D equipped with an XLR8er and 384K ram, running at a clock speed of 6Mhz, I did a benchmark test with the MSCI ARCHIVE utility and FASTBACK. ARCHIVE took exactly 26 minutes to back up 32 files totalling 1860K of disk space (almost 2 megabytes) onto three 720K 3 1/2" disks. FASTBACK did the same backup in exactly 6 minutes. By the way, if BACKUP/CMD were able to back up these large files, it would have taken 48+ minutes.

Many of you know how much and how strongly I believe in making backups. This is the reason that I have written FBACKUP and now the FASTBACK system. Not because I thought I'd make a lot of money off them (but that's not a bad idea), but because first and foremost I needed something that would be faster than that cursed BACKUP, which used to take me up to 3 hours to fully backup my system. Now I can do it in a few short minutes. There has never been a hard disk backup system even remotely like, convenient as, or as

friendly as the FASTBACK hard disk backup system. I'm proud to say that now one exists. stay tuned for details. It may be ready by the time you read this.

MULTIDOS NOTES

I realize that many of you are Multidos fans, but I am getting to the point where I am starting to hate it. Well, maybe that's a bit strong, but my feelings are close. First of all, I am getting really tired of hearing fans proclaim to me that Model 4 Multidos is the "ultimate" DOS. Bull. It is no such thing. It will never be so. I call Multidos a Raggedy Ann DOS, because it is derived from a patchwork DOS called ULTRADOS (which is far from truth in advertising), which was itself an over-patched version of NEWDOS-PLUS, which was itself an overpatched version of TRSDOS 2.1 for the Model I.

I must admit that Model III Multidos works quite well. But folks, the Model 4 version is not a true Model 4 DOS, except for the fact that it takes advantage of the Model 4 mode to run a Model III DOS. Sure, it supports 80 x 24, but so does VID280X24/CMD, found somewhere in The File Cabinet (MD4UTL10 -- it runs from the Model III mode).

One of the biggest gripes I get from Model 4 Multidos people is that they complain that the XYZ program they bought which says "Requires a Model 4 DOS" will not work on their Model 4 Multidos system. The reason it will not work is that you are not using a Model 4 DOS; you are using a Model III DOS. If you would read the documentation which came with your DOS you would know that. Why should I have to read it for you? (Is ol' Dave's nose getting out of joint?)

Not long ago several Multidos fans said that they would swear on a stack of bibles that Model 4 Multidos would run any program which will run on Model III Multidos, as long as the 64 x 16 screen was invoked via the V64 command. Well, I guess these guys are going to hell, because that is not so. I trusted their judgement and oaths and made the simple statement that the Multidos version of SCRIPT would run on Model 4 Multidos. I have found out recently that this is not true. Consider the normal exit to DOS. Why does the computer hang up? My opinion is that if a DOS is supposed to support the Model III, then it better support

all its documented addresses. Which it does not. I have therefore instructed Stan not to fill any orders for SCRIPT for Model 4 Multidos users. This is not to get you upset, but to prevent you from getting even more upset after you get it.

In general, Model 4 Multidos is an OK DOS (at least from what I've seen -- I don't use it in any way, shape, or form), and is all right if you have a large investment in Model III software. But they should not have tried to touch the Model 4 features. It was a much better DOS as Model III Multidos. If any Model 4 Multidos fanatics want to send me hate mail and call me so-and-so's over this -- be my guest. I stand over the kitchen waste basket when I open my mail.

SCRIPTING WITH SCRIPT

I think I've discovered something interesting. It seems that a lot of people have become so accustomed to me providing superior, well documented software that some of you bought SCRIPT because you thought it was going to beat any other word processor out on the market. Sorry to disappoint you. Mind you, it is superior and vastly more powerful if you are using Disk SCRIPSIT. SCRIPT simply picks up where SCRIPSIT left off, and added several dozen new features, making it a much more powerful word processor. However, if you have LeScript, SuperSCRIPSIT, SCRIPSIT Pro, or ALLWRITE, you may be disappointed. SCRIPT was written to fill a gap in the low end market. Not everyone can afford to spend in excess of \$100 for a word processor that they may use 2 or 3 times a month, if that many times. By the way, I use SCRIPSIT Pro, but I draft all my documents, such as this one, using SCRIPT.

Further, by my own admission, the documentation for SCRIPT is the worst I've ever written. If you ever used SCRIPSIT, you will have no trouble with SCRIPT, but if you are new, you may need to read the manual a few times to familiarize yourself with it. The problem is, even though it is complete, the manual is not organized in a seemingly orderly fashion. A neat hint is to make good use of the detailed table of contents. Again, Disk SCRIPSIT users will find this word processor a breeze.

By the way, the most-asked question has

been -- where is CLOSE? Well, it is documented on page 6 of the manual. It is used for closing a block. To execute CLOSE, hold the CLEAR key down and tap the "B" key to select the BLOCK command, and then, while still holding the CLEAR key down, press the DOWN ARROW key. What is a block? It is a section of text which you may want to move, copy, or exchange with another section of text. Suppose you want to copy a block of text to several locations? Mark the "block" of text by point to the start of the section of text with the cursor, press CLEAR-B to select the block command. Next name the block. Name it by typing an alphabetic character, such as "a" (be aware that character case makes a difference, so "A" and "a" are considered different). Next point to the end of the section of text and execute CLOSE as described above. Now move the cursor to the location you wish to insert a copy of the block. Next type CLEAR-I to go to the insert mode, type CLEAR-B to tell it you want to insert a block, and then type the block name, "a" in this case, and a copy of the block will be inserted there. Handy.

If there is sufficient interest in SCRIPT, I may start a small tutorial series. But even if I don't, I plan to drop tips like the above now an then anyway.

CALL TO MODEL III USERS

It is not that I have been ignoring the Model III users with the utilities described in this column. I could produce LDOS versions in little time at all, which extends to my popular File and System utilities as well. It is just that I have not received sufficient requests for such utilities from Model III users. And for those that have, for some reason most of the people who have been asking expect me to give it to them for free, like I owe it to them or something. I don't. But if you Model III people want this kind of stuff, you'd better quit waiting for the "next guy" to pipe up, because he isn't, and as long as all the demand is in the Model 4 arena, that is where I will cater. The fact is, I'd love to cater to you, but so far the Model III demand is so dismal that there is no way I could justify the time in doing it. It's just like Model I soft font drivers. Sure, I could produce them, but who can I expect to buy them?

MEMORY LANE

By the way, just for you old time TRS-80 users: remember when lower case descenders were the big issue? What about the keyboard debounce controversy, and the dozens of user solutions? Remember lower case modification kits? Being the proud owner of an expansion interface? How about spending \$500 for a single sided single density 35 track disk drive? Remember when Level II was all the gossip? Or a 16K upper-case only tape-based Model I was dropped to the reasonable price of only \$699.95? If any of you remember all this, then maybe we can trade war stories. And for those that don't, we can give a smug knowing smile.

Life changes so rapidly. One day we'll speak of the nostalgia of the 90's. On top of that, I'm going to become a great uncle next month (May). Gee, that's one removed from a grandfather. And at 36, that's eye opening. I know that my sister isn't all that happy about the idea of being called Grammy (especially by yours truly).

REQUIEM FOR A FRIEND

On a sadder note, my father, Richard F. Goblen, died 2 days ago, on April 5 in Rolla, Missouri. Cancer took him almost a month before his 61st birthday. Funny guy. He said he wanted to miss his own funeral. He did. According to his wishes, there was none, or any memorial service. However I'm sure that all who knew him conducted their own memorials in the depths of their hearts.

He was a man with an 8th grade education who taught me more about life than any 10 PhD's. He was a hard man whose presence commanded respect, but did not know how to accept affection from his sons. I'm so glad I was able to have courage enough to finally tell him I loved him last summer. He was my hero. Even more, he was my friend. Thanks, Dad. I love you.

Happy computing.

-David Goblen

(Editors Note) Due to some persistent CN80 nagging, David has released Model III LDOS versions of his Systems and File Utilities and FBACKUP and FASTBACK for Model III. See the ad section for more details. We hope that this will make the Model III owners feel a little less neglected.

More TRSDOS 1.3 filters

The filtering method outlined last month can be also applied to a "keystroke multiply" filter for TRSDOS 1.3. Like the printer, Mod-III keyboard has a DCB (Device Control Block) that contains the address of the keyboard driver. When a program needs input, it calls the driver which returns the pressed key in register A. As in the printer filter, we can replace the driver's address in DCB with the address of our filter. The filter will have a data area with characters or entire strings of characters (also called "macros") to be returned if some key combination is pressed. To keep it similar to LDOS, let's make it 'clear+key'. The filter will maintain a pointer to the replacement characters. Initially it will point to a "zero". When an input request gets diverted from the standard driver to our filter, we won't have any string to supply, so we'll CALL the standard driver to fetch a key. Then we'll examine this key. If it's one of our 'clear+key' combinations, then we'll RETURN to the calling program the first character of the replacement string. When the program again sends a request to the keyboard driver, we'll send the next character from the string, and so on, until all are used up. Of course all this happens instantly, so a single keystroke will spill out at once whatever we assign to it.

K S M filter

Like the printer filter last month, KSM will be designed as a "memory module". Since we have fixed "load" addresses in it, several "FIX" labels are necessary in the filter, for the loader to be discussed later (if you missed the subject of "memory modules" and "fixing" of addresses, please review it in "Z80 Tutor II" or in CN80 3/90 through 6/90). Even though the data area will be actually at the end of the filter, we'll look at it first to see what the filter will be dealing with.

```

;-----
HOLD:  DEFW  DONE      ;pointer
FIX4:  EQU   $-2
MACS:  DEFB  'a'+128    ;match key
       DEFM  'AUTO '    ;string
       DEFB  0          ;string end
       DEFB  '.'+128
       DEFB  93         ;bracket ]
DONE:  DEFB  0          ;last byte
;-----

```

The first item is a storage for the pointer to strings. Initially it points to the last byte in the data area which is a "zero". Then come our "keystroke multiply" strings or "macros". Each must consist of 3 elements:

- specially encoded key to match,
- actual replacement string,
- zero as terminator of each string.

The encoded key must be in lower case (we'll see later why). By adding 128 the assembler sets its "high bit" #7 to "one". That's outside the standard range of ASCII characters, to distinguish it from other characters in the data area. This little illustrative sampler is for 'clear+A' to produce the keyword AUTO used both in DOS and BASIC, and 'clear+period' to generate the right square bracket not available on Mod-III keyboard (left square bracket is generated with up-arrow). In this fashion we could assign any single character or string to any un-shifted key pressed together with 'clear'.

Now let's take the first part of the filter. The input request will be diverted from the standard keyboard driver to the filter's entry point at the label EXEC.

```

;-----
EXEC:  LD     HL,(HOLD) ;getpointer
FIX1:  EQU   $-2
EXMAC: LD     A,(HL)    ;get char
       OR     A         ;zero?
       JR     Z,INKEY   ;yes, get key
       INC    HL        ;point next
       LD     (HOLD),HL ;store it
FIX2:  EQU   $-2
       RET                     ;return char
INKEY: ....
;-----

```

The first thing is to get the pointer and the character to which it points in the string storage area. If it's zero then the filter has nothing to return. Therefore jump to INKEY to get a keystroke from the driver. Otherwise increment and store the pointer for next input request, and return the character in register A to the calling

program. The INKEY procedure calls the standard keyboard driver to get a character and check it for 'clear+key' combination. Here we write CALL \$ because the address of the keyboard driver will be inserted by the "loader" (this "trick" of a program inserting address into its own JP and CALL instructions was discussed in "Z80 Tutor II" page 29, and CN80 5/90:6).

```

;-----
INKEY: CALL    $          ;call driver
          LD      C,A      ;save key
          LD      A,(14464) ;shifted?
          AND     3        ;left+right
          JR      NZ,OKEY   ;yes, pass
          LD      A,(14400) ;clear?
          AND     2        ;pressed?
          JR      Z,OKEY    ;no, pass
          LD      A,C      ;restore key
          OR      ' '+128   ;encode
          LD      HL,MACS   ;HL=>strings
FIX3: EQU     $-2
          LD      BC,DONE-MACS ;length
          CPIR          ;scan
          JR      Z,EXMAC   ;match!
          XOR     A         ;else null
          RET
OKEY: LD      A,C          ;restore key
          RET              ;pass thru
;-----

```

Save for a while the key returned from the keyboard driver, and do a couple of checks of the Model-III "keyboard matrix". Each bit in the "matrix" corresponds to a key, and is set "one" if a key is pressed, or reset "zero" if not. At the address 14464 (3880'hex) bits #0 and #1 represent the left and right 'shift' keys. The AND masks these two bits, and if either one is set then the result is not-zero. So we return to the calling program whatever key was pressed together with shift. It's not what we're looking for. At address 14400 (3840'hex) bit #2 represents 'clear'. Again AND it, and if zero then 'clear' is not pressed, so that's also passed "as-is". Otherwise 'clear' is pressed, so restore the key received from the driver. The OR mask converts it to lower-case and sets bit #7 to "one", in the same fashion as the encoded keys in the data area. Then comes the usual set-up for CPIR and if a match is found then scan stops with HL pointing to the character right after the match. This is of course the beginning of our string, so jump back and keep returning the characters until the terminating zero. If there was no match then XOR A to return "zero", ie. nothing. Apparently 'clear' was

pressed together with some key for which we didn't provide a "multiplier" string. Or perhaps 'clear' was pressed alone. But 'clear' alone is supposed to clear the screen in Mod-III, so are we in trouble? Well, to clear the screen when the filter is installed we must now press 'shift+clear' like in LDOS. That's why the initial check in our filter immediately returns without change any key pressed together with 'shift', including 'shift+clear'.

So that's about it. Now to the "loader" and "header". Since in this filter we have several "fixed" addresses to adjust for relocation, we will have to use the long version of our loader ("Z80 Tutor" volume II, page 31, or CN80 6/90:5). Type it exactly as shown there, except for the ending portion:

```

;-----
          ORG 32000          ;LOADER
RUN: LD      HL,(17425)      ;get high$
..... and so on, up to .....
          JR      NZ,FIX      ;more?
          LD      HL,(16406)   ;driver addr
          LD      (INKEY+1),HL ;for calling
          POP     DE           ;high$
          POP     HL           ;filter end
          LD      BC,DONE-HEAD+1 ;length
          LDDR          ;relocate
          LD (17425),DE        ;new high$
          INC     DE           ;filter entry
          LD (16406),DE        ;put in DCB
          RET              ;exit to DOS
TABLE: DEFB 4                ;four fixes
        DEFW FIX1,FIX2,FIX3,FIX4
;-----
HEAD: JR      EXEC
....   .... standard header goes here
EXEC:  .... first part of filter here
INKEY: .... second part here
HOLD:  .... data area goes here
DONE:  DEFB                      ;last byte
        END    RUN
;-----

```

The main difference is that we must get the old address of keyboard driver from DCB and replace it with the address of the filter. The DCB is located at 16405 (4015'hex), so as usual the driver's address is in the second and third byte, ie. at 16406. Before relocation we get the old address and "stuff" it into our CALL at the label INKEY, and after relocation we replace it in DCB with the entry point to the filter, which is just one byte above the new HIGH\$.

S o m e f i l t e r , s o m e d o n ' t

Customize or add strings in the data area to your liking, and assemble it for example as KSM/CMD. Any character or string can be assigned to any un-shifted key (letters, digits, punctuation marks). Letters will work even with "caps locked" because in the filter we convert them to lower case. As with the printer filter last month, this one works with programs that (a) respect HIGH\$, and (b) use the standard keyboard driver. Here again Mod-III Scripsit fails, because it bypasses the driver to detect the 'clear' key. But the filter works fine at the DOS level and in BASIC, except that INKEY\$ will only pick up single character "strings". INPUT, LINE INPUT, and the "immediate" and "edit mode" will accept strings of any length, up to BASIC maximum. If Carriage Return byte 13 is stored at the end of a string then it will cause execution of a command. For example:

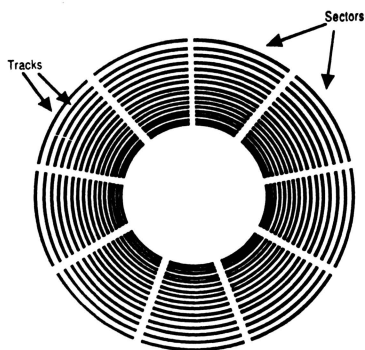
```

;-----
DEFB 'r'+128
DEFM 'RUN'
DEFB 13
DEFB 0
;-----

```

With the filter in place just press 'clear+R' to run a "resident" BASIC program. And so forth. As with any filter, it is important to not install KSM twice, and the loader could be expanded to detect an already installed filter. Similarly an un-install procedure could be added, and perhaps a message with the list of assigned keys, etc. But such lengthy embellishments are not essential to the filter's purpose and logic which is what these tutorials are all about.

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The Model III Corner

WHAT'S IN NEWDOS90

by Warwick Sands

By now most of you, dear readers, will have seen the ad for NewDos86 on the back page of CN80. Don Ady has written a review of NewDos86 which was published in the September and November 1990 issues of CN80. While that was being done I upgraded NewDos86 to NewDos90. So I thought I would tell you of some of the changes and give you an idea of the other software that comes with it.

I would like to reply to some of the points Don made. In the September review, he noted that DIR seemed to be slow the first time used? This was probably due to the Automatic Density and Format Recognition routine figuring out what sort of disk was in the drive. The perceived problem with entering the square brackets in the Enhanced Line Editor as reported in the November CN80? The ELE won't function unless the Control Key Driver is installed, this driver allows you to enter the square brackets by using the <clear> key and the comma and period keys. More details Chapter 5-1 of the ND90 manual.

Before settling down to the nitty-gritty, I would like to introduce myself. Like David Goben, I started programming on the TI-59 calculator which I purchased whilst completing an associate diploma in Electronics and Communication. I soon moved on to the Video Genie, the Model 1 clone which was sold in Australia as the System-80. I now also possess a Model 4.

Not long after I started playing with the System-80, I noticed that some enhancements to the BASIC interpreter would give it a bit more functionality. Thus was born the Tape Operating System (TOS) that was distributed through the local users group here in Australia. I then moved into the world of disk using NewDos80 exclusively, TRSDOS 2.3 was unfriendly. The TOS then moved into the disk world and became Custom Basic for '80 users. This ran under most of the DOS's, some better than others. TRSDOS 2.3 BASIC benefited greatly. The main advantage of the TOS and CUSTOM BASIC was that you could select the subset of the enhancements you wanted. These choices

were then assembled into High Memory and dumped either to tape as a SYSTEM file or to disk as a /CMD file. Upon executing the /CMD file, BASIC was loaded and patched with the high memory enhancements. Eventually this led into NewDos86 and then NewDos90, where the Basic enhancements were made an integral part of BASIC/CMD, and many new functions were added to the DOS itself.

I do all of this work in my 'spare' time. I currently work for Telecom Australia, the Australian equivalent of Ma Bell before she was split up. I work primarily in the Unix environment (HP 9000-835, Sun 3/60, Fujitsu Mainframe running System5/v3) designing Oracle Databases. I also do some work using MSDOS 3.3 and Windows3 on a COMPAQ SX386 box. Using MesSDOS in this environment makes it quite friendly (about time).

NewDos90 is essentially NewDos86 with an added Shell program (SYS16/SYS) and the HelpDriver as standard. There have also been some changes at the DOS prompt. Multiple DOS commands are allowed. Each command is separated by a ~. If a DOS command is started with an = then the DOS command editor is entered before the command is executed. Handy for JCL files. To include multiple commands in the AUTO command, separate the commands with a ']' (CHR\$(127)), achieved by pressing <CLEAR SHIFT ENTER>. AUTO converts these to ~ before storing them.

DIR now supports the & parameter which inhibits the initial clearing of the screen. These changes required a reorganization of some of the SYSTEM files and since I was working with both systems, a name changed seemed appropriate. Rather than bore you with other details of NewDos86/90 I would refer you to the review articles mentioned above.

Why did I decide to stick with the Model 1 and 3 machines rather than release a model 4 DOS? Several reasons (These are not in order of importance, I will let you decide that). I am familiar with the ROM in the older machines. I felt that a lot of users had a lot of software that suited them and the added expense of upgrading the software to the Model 4 standard would not be warranted. Additionally some software was

not available in the model 4 mode. Since writing code is a hobby, I could not justify the amount of time required to produce a Model 4 version. By sticking with the Model 3 standard I felt that I continue to provide support to the Model 1 & 3 users that were not going to upgrade to the 4.

Not that I have ignored the 4. ND90 has a limited RAMDISK capability and also supports 80x24. I am looking at providing a modified ModelA/III file and also support something similar to the @BANK SVC call in TRSDOS for accessing extended memory.

Onto the software supplied with NewDos90. The NewDos90 system disk contains all programs that are model specific. E.g. LOGON/CMD and DEVICE/CMD as written for the Model 1 won't function correctly on the Model 3/4/4P. So these files are included on the system disk. NewDos90 currently comes with several public domain disks. These disks contain programs that are Model independent. Some of the programs were written by individuals other than myself. SETDATE/CMD was written by Jack Decker, AUTUNKL/CMD was written by another Australian Phil Ereaut.

As well there are several disks which hold help files on subjects such as AIDSIII, SUPERZAP and ND86. And finally, there is a disk which contains a printer utility TYPE/CMD and associated printer drivers.

These are all supplied when NewDos90 is purchased. There is an additional set of disks, the TEKPAK series, which contains the source code for many of the programs supplied with ND90. These may be obtained at a further cost. The disks are all single sided double density 40 tracks.

Disk ND90PD#1 11/10/90 40TRKS 18FDES
0 GRANS

ATTRIB/BAS	A U T U N K L / C M D
CAPTURE/BAS	CAPTURE/CMD
CAPTURE/TXT	C H N G D F L T - B A S
COMP/CMD	COPY/BAS
CREATE/BAS	D A Y / C M D
DEVICE/TXT	DIR/BAS
FILTER/TXT	H D I R / C M D
IBMRD2/CMD	ILF/BAS
LOCATE/CMD	L O C A T E / T X T
LOGON/TXT	LOOK/BAS

MAP/CMD	NAMEFILE/BAS
ND90DISK/DOC	NEWDATE/TXT
PAGE/CMD	PAGE/TXT
PLOTMATH/BAS	RAMDISK/TXT
SHELLCFG/BAS	SHELLCFG/DAT
SHELLCVT/BAS	SLEEP/CMD
SORTDIR/CMD	SORTDIR/TXT
SWEEP/CMD	TABIT/CMD
TABIT/TXT	TRAP/FLT
TYPE/CMD	UNKILL/TXT
USR/DEM	UTILITY/BAS
UTILITY/TXT	ZAP/BAS

Disk ND90PD#2 09/20/90 40TRKS 86FDES
0 GRANS

ARRDFLD1/ASM	ARRDFLD1/CMD
ARRDFRD3/ASM	ARRDFRD3/CMD
COMMAND/TXT	INPUTTO/TXT
MEMORY1/TXT	MEMORY2/TXT
ND90DISK/DOC	PRINTER/ASM
PRINTER/N80	PRINTER/N86
PRINTER/TXT	SDM/CMD
SHELL/TXT	VID/TXT

Disk ND90PD#3 11/10/90 40TRKS 93FDES
104 GRANS

CBASIC/MAC	EDAS/MAC
EDAS43/PDF	MACRO/FLT
MACRO/MAC	MACRO/TXT
ND90DISK/DOC	PDRIVE1/CMD
PDRIVE3/CMD	SHOWMAC/CMD
VERSIONS/LST	

Disk Help#1 10/21/90 40TRKS 96FDES
3GRANS

MACASMON/HLP	ND804/HLP
SUPERZAP/HLP	TYPE/HLP
VISICALC/HLP	

Disk Help#2 10/21/90 40TRKS 99FDES
45 GRANS

AIDSIH/HLP DTWRITER/HLP ND86/HLP

Disk Type 09/20/90 40TRKS 69FDES
21 GRANS

BROTHER1/ASM	BROTHER1/DVR?
BROTHER2/ASM	BROTHER2/DVR
COPAL/ASM	COPAL/DVR
DWP410/ASM	DWP410/DVR
EPSNFX86/DVR	EPSNMX83/ASM
EPSNMX83/DVR	GP100/ASM
GP100/DVR	ITOH8510/ASM
ITOH8510/DVR	ITOHF10/ASM

ITOHF10/DVR	LPV/ASM
LPV/DVR	LPVIII/ASM
LPVIII/DVR	LZ35/ASM
PANASON1/DVR	PARAM/ASM
PRINT5/ASM	STAR/ASM
STAR/DVR	TOSH1350/ASM
TOSH1350/DVR	TYPE/CMD
TYPE/TXT	TYPETECH/TXT
VECTORS/ASM	

Disk TekPak01 11/05/90 40TRKS 38FDES
0 GRANS

CAPTURE/ASM	DAY/ASM
EXTEND/ASM	LOCATE/ASM
LOGONA/ASM	LOGONB/ASM
MACRO/ASM	MACRO/LIB
MODEL1/EQU	MODELIII/EQU
PAGE/ASM	PARAM/EQU
SETSYS/ASM	SPOOLCHK/ASM
SROUTINE/LIB	SYS22/ASM
SYS22EDT/ASM	UNKILL/ASM
VID/ASM	VID1/ASM
VID2/ASM	VIDUTIL/ASM

Disk TekPak02 11/05/90 40TRKS 49FDES
4 GRANS

AUTUNKL/ASM	COMPK/ASM
HDIR2/ASM	MAKELIB/ASM
MAP33A/ASM	MAP33B/ASM
PRINTER/ASM	PSF/ASM
RELOC1/ASM	SLEEP/ASM
SORTDIR/ASM	TABIT/ASM
TRAP/ASM	

Disk TekPak03 01/30/91 40TRKS 97FDES
104 GRANS

COMP/ASM	COMPB/ASM
COMPMSGE/ASM	HDIR90/ASM
TEKPAK/DOC	

The /DOC files provide summary information about the disks. Detailed information is provided either in the /TXT files or the ND90 manual.

Regarding the above disks, the files on the SYSTEM disk and the TEKPAK series are copyrighted programs, while all the others are Public Domain. Most of the public domain programs only work under NewDos90 and are available from the File Cabinet 1/3 libraries.

I tend to revisit some programs in an

endeavor to make them easier to use and/or provide more facilities. For example HDIR/CMD has been changed to allow the standard DIR selection criteria to be used, while COMP/CMD now allows filenames to be specified on the command line. But how does one handle distributing the changes? Particularly when one lives half the world away!

The following method springs to mind as the most effective. However, as in most other things, I am always open to suggestions.

As programs are altered, I will send to the Filing Cabinet two disks titled UpdatePD (for Public Domain) and UpdateTK (for TEKPAK). CN80 will publish a notice that the new disks have been received. Each Update disk will have a file called CHANGES/TXT which will list the files on the disk, how they have changed and what disk to copy them to. CN80 will print this file to let you know what new things are available.

Any fixes for major bugs that become apparent in the DOS will be supplied as they become available. (I don't know of any currently outstanding ones). The fixing of small annoyances and the provision of slight improvements to the DOS will be distributed on these Update disks. This keeps CN80's costs down and still provide you with a reasonable service.

How do I differentiate between small annoyances and major bugs? I know from my own experiences that this is a function of who has to suffer the minor annoyance. I will try to illustrate. In the very early days of NewDos90, I sent CN80 a set of masters that were flawed. Everything worked fine until one turned off the Keyboard Type Ahead while keeping the Control Key Driver active. This set of circumstances caused an instant re-boot. That is a major bug.

The Shell program of NewDos90, currently doesn't run in 80x24 mode. When you enter the DOS SHELL video mode is set to 64x16, and this remains the mode when you exit the SHELL. Somebody requested that the SHELL be given the ability to return to 80x24 mode on exit. This has been done. This is an enhancement or the fixing of an

annoyance, depending on your point of view. But does it warrant the expense of sending out a new DOS disk to all users? I personally don't think so.

The current versions of UpdatePD contains the new HDIR/CMD, COMP/CMD and the changes to the shell program (SYS16/SYS) mentioned above. The improved version allows you to set an option with SHELLCFG/BAS that will do a CLS and revert to 80x24 mode if it was previously available. Also included are two programs that allow you to read/modify the PDRIVE entries on 'foreign' disks.

Future Directions: I am working on a version of DOS for the SCSI hard drives sold by Misosys. I have been running this system since July but a bit more work has to be done before I can release it for general consumption. A future project will be to convert both the DOS SHELL and SWEEP to execute in 80x24 mode.

If you have any problems with NewDos 90 please let me know. Writing good, reliable software is something I aim to do. If something slips through I do appreciate being informed of it, so that I can fix it. This makes you happy and gives me a sense of satisfaction. You can pass messages to me through CN80, but please feel free to contact me direct if you so choose.

Please don't feel that you need a bug to report before you can write to me. A lot of the ND90 utilities were written because someone suggested the need for it, one example being CAPTURE/CMD. So if you have some ideas or simply some comments please write. I will be pleased to answer any queries and I do endeavor to respond quickly if a bug surfaces.
- Warwick Sands.

(Editors Note) If you would like a copy of the two TekPak Disks, send \$10 to CN80, for the disks postage included.

Warwick may be reached by writing to CN80 of directly to:

Warwick Sands,
P.O. Box 3474,
Loganholme,
Queensland, Australia 4129
Phone 061 7 801 2715
Work Fax 061 7 837 4704

DAVID'S MODEL 4 UTILITY PATCHES

by David Goben

Hard disk systems are going to be the death of me. I used to wonder why MISOSYS used to issue so many patches for their products. Now I know -- computer system diversity.

I have found that the programs MAP/CMD and UNREMOVE/CMD in DAVID'S MODEL 4 FILE UTILITIES package will not operate properly on a few hard disk systems. Along this line, I have found that the programs CLEANUP/CMD, DISKKEY/CMD, and VERDISK/CMD in DAVID'S MODEL 4 SYSTEM UTILITIES package suffer the same malady. However, these programs =will= run properly on over 95 % of the Model 4 systems out there. That 5 % is like a thorn in the side.

Recently I discovered the root of the problem and set about finding an easy way to fix it. I succeeded. Hurray for our side.

If you have either of these 2 utility disks, before installing any of the patches which are listed in the program listings section later in this magazine, first be sure that the specified programs actually require the patches. You can do this by simply entering the program's name without any parameters on the DOS Ready line and checking the version numbers. Compare these to the comments in the headings for each patch. If, for example, the comments specify that it changes version 1.3.1 to 1.3.2, and you have version 1.3.1, then you need to apply that patch. Therefore it is obvious that if you have version 1.3.2, this means that the patch has already been applied to your program. Also please be aware that UNREMOVE has 3 separate patch files, and CLEANUP has 2. Use only the patch files which pertain to you. If you apply a patch which brings it up a level from the current one, be sure to apply any consecutive patches that further upgrade the program. IMPORTANT: apply these patches to backup copies of the programs -only-, and test them before you even consider updating your masters.

You make a patch file by using the BUILD command and create a file as described in the first line of each patch (do not type in the dashed lines between patch listings); they demark the separate patches. You can also use TED, or SCRIPT, or Disk SCRIPSIT

to create these files. Be sure to save them in ASCII format if this is an option. Press BREAK to quit the build mode if you are using BUILD, when you are finished typing the lines in.

If you have never installed a patch, then it's about time you gave yourself a treat. Installing a patch is easy, gang. You might want to build up a little courage by reading the section on the PATCH utility in your DOS manual. Once you have installed your first patch, I think you will suddenly feel much more confident and at ease with your system. If you make a mistake, simply review what you did versus what any given instructions were, then try again.

```
-----
. MAP/FIX
. Fix for all hard disks
. Changes version 1.1 to 1.2
. Usage: PATCH MAP using MAP
X'292F'=06
X'294F'=18
X'2CF3'=32
. eop
```

```
-----
. UNREMOVE/FIX (# 1)
. Fix for all HARD DISK types
. Changes version 1.3.1 to 1.3.2
. Usage:
. patch UNREMOVE using UNREMOVE
X'25E0'=FD CB 03 5E 20 07 FD CB 04 6E
X'25EA'=28 01 87 FE 23 38 02 3E 22 47 C9
X'2960'=CD E0 25
X'29AE'=32
. eop
```

```
-----
. UNREMOV2/FIX (# 2)
. Fix for all HARD DISK types
. Changes version 1.3.2 to 1.3.3
. Usage:
. PATCH UNREMOVE using UNREMOV2
X'25F4'=05 05 C9
X'29AE'=33
. eop
```

```
-----
. UNREMOV3/FIX (# 3)
. Fix for all HARD DISK types
. Changes version 1.3.3 to 1.3.4
. Usage:
. PATCH UNREMOVE using UNREMOV3
X'2933'=06
X'295C'=08
X'25E0'=C5 ED 4B A7 28 4F AF
X'25E7'=81 10 FD C1 00 00
X'29AE'=34
. eop
```

```

-----
. CLEANUP/FIX (# 1)
. Fix problem with HARDDISK parameter
. Changes version 2.1.0 to 2.1.1
. Usage:
. PATCH CLEANUP using CLEANUP
X'2663'=CD B6 29
X'280E'=31
X'29B6'=C5 3E 11 EF C1 C9
. eop

```

```

-----
. CLEANUP2/FIX (# 2)
. Fix for all hard disks
. Changes version 2.1.1 to 2.1.2
. Usage:
. PATCH CLEANUP using CLEANUP2
X'26C1'=CD
X'272B'=08
X'2732'=CD BC 29
X'27E4'=C9
X'29BC'=ED 4B FD 26 4F AF 81 10 FD
X'29C5'=FE 23 38 02 3E 22 47 C9
X'280E'=32
. eop

```

```

-----
. DISKKEY/FIX
. Fix for all hard disks
. Changes version 1.1 to 1.2
. Usage: PATCH DISKKEY using DISKKEY
X'2670'=CD
X'269F'=08
X'26A4'=42 36
X'26B1'=11
X'3642'=ED 4B BE 27 4F AF 81 10
X'364A'=FD C9 3E 0A EF C3 CE 2C
X'2D2B'=32
. eop

```

```

-----
. VERDISK/FIX
. Fix for all hard disks
. Changes version 1.0 to 1.1
. Usage: PATCH VERDISK using VERDISK
X'2684'=08
X'2689'=E0 25
X'2766'=C9
X'25E0'=C5 4F FD 7E 08 07 07
X'25E7'=07 E6 07 3C CD 6C 27
X'25EE'=47 AF 81 10 FD C1 C9
X'27F4'=31
. eop

```

If you find yourself too skiddish about patching, you can send your original disk(s) to CN80 in a disk mailer along with a return postage, and CN80 will do it for you. Remember, if you fail to send the originals, the service will be refused. Also, if you fail

to include return postage, you may not get your disks back. After all, these patches are **not actually required** if you have a standard Model 4 configuration. These patches simply upgrade the programs to work on some of the most diverse configurations. Normally such modifications would cost the customer a fee to make changes to the programs to make them work on some of the odder setups. It therefore should not be seen as an expense which should be incurred by CN80 or me.

-David Goben

THE NEWCOMERS CORNER

For Novices, Beginners and First time TRS-80 Users. Part 2

Let's Format by CN80 Staff

Last month we discussed DOSs (Disk Operating Systems) and told you what the key eight command words were that are used at the DOS Ready level to communicate with the computer. In our example last month we used the command LIST, which is used to read a file and place its contents on your screen to be read, or send it to the printer to give you a hard copy of the files contents. This month let's start right at the beginning of anyone's computer experience and talk about FORMAT.

One of the first things heard from a computer salesman as he rings up your computer purchase is "You will need a box of disks to go with the computer and you will have to format them when you get home." Chances are you told him "OK, throw in a box," all the time wondering just what the H--- he was talking about. Chances are that the first thing you learned to do on your computer was how to FORMAT a disk.

DISK KNOWLEDGE

But before we get too deep into formatting a disk, we need to know a little about floppy disks and how the computer uses them. Did you pick up on the use of the word "floppy"? 5-1/4 disk are referred to as floppy disks because of their flexible

nature, 3-1/2 disks even though they are protected by a much more rigid outer jacket are still referred to as floppy disks and because of the nature of the media that the information is stored on which is the same thin plastic film that is used in 5-1/4 disks. This film looks and acts very much like the audio tape in a audio cassette, except it is cut in a flat donut shape rather than a strip of tape. There are many other mechanical devices that computers use to store information on such as rigid hard drives, computer tape storage media, but our computers come equipped with disk drives which are used for the purpose of storing information, so that is where we should begin and leave hard drives and other storage media to be covered by other articles.

Data stored on a floppy disk is stored in concentric rings know as tracks, or as the purest would say "cylinders" for double sided disks which has a corresponding set of tracks positioned on both sides of the disk. These concentric rings are broken up into sectors. A typical floppy disk formatted for TRS-80 double density is a disk with 40 tracks. The explanation of why this is done is not something that need concern the average user. But it does contain some of the terms that you need to become familiar with to recognize what disks your system can use.

What we do need to know about is that when a disk is placed into a disk drive unit and you store data on it (including programs) that the read/write head of the disk drive unit skims across the disk media and magnetizes thousands of tiny iron oxide needles contained in the coating of the disk.

DISK DIRECTORIES

The directory of a disk is the area where all the names and locations of the files on a disk is stored. And the location on a disk for the directory is decided by the Disk Operating System (DOS) that you use when you use the FORMAT command program supplied with that particular DOS.

Typically one computer can not read another computers disk, unless they and their disk operating system's format program have been designed to be compatible.

For a detailed list of what TRS-80 DOS

system can read what disk formatted with another TRS-80 DOS system refer to CN80 Vol. 3 No. 3, page 13 where in David Goben's article for that month he goes into great detail on "What Can Read What?"

But now let's get back to the command FORMAT and what it does.

THE FORMAT COMMAND

Every computer disk that comes out of the factory is a "blank" disk. Just like a blank sheet of paper. And like a ruled piece of notebook paper, lines have to placed on it so the writer knows where to place his writing. (And we thought computers were smarter than first graders.) That is what the FORMAT command does, it lays out the lines (tracks) on the blank plastic disk so that the computer knows where to place the magnetic fields that it writes and reads. Just like we do when we write on, and then read back from a piece of ruled notebook paper.

But with some very major differences from our looking at a sheet of paper and being able to scan the whole page with our eyes. We don't need to be told where to look for a particular piece of information. We humans just scan the whole sheet in front of us until we find the word, number or whatever we are looking for. The computer on the other hand needs to read the first page of the index (directory) to know where to find what it is looking for out of all the millions of little pieces of information contained on a disk. Otherwise it would have to start on the first line of the disk and search every word, letter by letter until it came to the item it was looking for. That could take a long, long time for us to have to wait each time we wanted to do something. So this short cut was developed whereby the computer first reads the directory on the disk which tells it where the information is stored on the disk, then skims across the disk very rapidly to the section where the information is stored, or in case it wants to write some information to a disk, it first goes to the directory to find out where there are blank spaces left on the disk, so it does not overwrite some information previously stored there.

The location of this directory is important, because that is the first thing the computer looks for when reading or writing to a disk.

No computer can read a blank disk, some companies are selling preformatted disks, but none that we know of sell disks preformatted for use with the TRS-80 user. We have to do it ourselves. Almost every program manual that Tandy printed has a section on how to Format your disk, as well as the Disk System Owners Manual, and the Manuals by Chris. However it is important that we new users know and understand why a disk needs to be formatted, we don't need to know how the computer does it. Surely new owners of computers have already mastered the technique of formatting blank disks. By the way the DOS FORMAT command is not used to format a hard drive, it is only used to format a floppy disk drive.

So far we have learned that we have to format a disk before we can use it to store data. When we buy a combination system/application program disk the publisher of that program disk has formatted the disk prior to placing the application and system files on it. So we don't need to format these "distribution" disks, we need to format the blank disk that we purchased to store the data on that we create with the program disk we purchased.

The actual formatting operation is very easy, you place a system (DOS) disk in the lower drive (drive 0), and a blank disk in the upper drive (1) and at DOS Ready we type

FORMAT :1 <Enter>

Then the wheels start buzzing and turning while the computer looks for and loads the Format/Command file from the systems disk. Then you get a series of questions that come up on the screen.

Do you want to give this disk a name? If yes type in the name you want, eight characters max. and beginning with a letter first if you want to use some numbers in the name, otherwise just press enter and the computer will name the disk "Datadisk" for you.

Do you want to use a password? Best just say no, unless you can remember that password forever and ever.

Do you want double or single density?

These questions pertain to your system and you need to answer accordingly. Today almost every system reads and write to double density disks, so that is the answer you should use, unless you have a particular reason for formatting a disk in single density. We format disks in single density and 35 track for many of our distribution disks so that many DOS systems can read the disks and transfer data from the distribution disk. However it is not practical to use this format in daily use because it severely limits the amount of data that can be stored on a disk.

Do you want one side formatted or two?

Does your computer have double-sided disk drives or not. If it doesn't you can't read a disk formatted on both sides with a single-sided drive, but you can read a disk formatted only on one side in a double-sided drive.

How many tracks do you want?

If you hit enter without an answer here your DOS system Format/CMD program will take over and format your disk with the standard 40 tracks.

If you have a 3-1/2 760K drive installed, or an 80 track double-sided disk drive installed in your system you can specify 80 tracks, but you are better off sticking with the standard 40 track format, unless you are formatting for a special purpose disk like 35 track as we mentioned above. We do not recommend pushing the disk to its outer limits by formatting over 40 tracks, as many do by formatting 42 tracks. The disks were not designed or tested for this use by the manufacturer and it is risky at best to over format the number of tracks on a disk beyond what it was designed for.

One thing to remember is that formatting a disk will wipe out anything that has been previously stored on that disk. Unless you are formatting a new box of disks you should make sure that the disk you are about to format has no data on it that you wish to save. It is a good idea to read the directory of a disk that has been used prior to typing FORMAT, just to be sure there is nothing on the disk that you really want to save. Otherwise you will wipe out the information and there is no way to ever

recover any of that information once you have formatted the disk. More on using the Directory command in our next issue.

Once you have gained some experience in formatting blank disks or reformatting disks that have information on them which you no longer need, you are ready to start using some of the additional command syntax (parameters) that can be added to the FORMAT command.

Example:

FORMAT :n (Q=N)

Format is the command / :n is the number of the drive to be formatted / (Q=N) is the additional commands or (parameters) / Q stands for Query, =N stands for No; or in other words you are telling the computer to format the disk without asking you any of the questions that show up in the prompt lines. The FORMAT command will start and complete the formatting of the disk in the drive you have selected without asking any questions. The newly formatted disk will have the number of sides, number of tracks, and disk name that the DOS system program has been set to use as its DEFAULT settings. Typically the default settings will be 40 track, single-sided double-density with 180K of storage space. (Storage space is shortened to 174K as the format procedure has reserved a section of the disk for the directory location.)

INTERESTING BUT NOT NECESSARY

Only TRSDOS 1.3 users will be asked for the step rate to be selected, and the default is 6ms. This will not concern the majority of users using Model III and 4s with LDOS or TRSDOS/LS-DOS. And if you were wondering about why the disks our computers use are referred to as "soft-sectored", here is the reason. Soft-sectored means that the computer decides for itself where each sector is located on the disk. Hard-sectored diskettes refers to some older computers that used disks that had a small ring of holes in the center of the disk that were used to line up the location of the sectors.

NECESSARY TO REMEMBER

A DOS system can not read information on a disk that has been formatted by a different DOS system. (Exceptions are when the DOS has been deliberately programed to

be compatible with certain other DOS systems.)

Formatting a disk will wipe out everything that was on the disk, and can't be recovered.

Today's disks are manufactured to be used as single-sided or double-sided formats. Old disks that were labeled as single-sided on their packages, can be used as double-sided disks, but the manufacturer only tested one side and does not certify that both sides are error free.

The format will lockout any defective tracks on a disk. At the price of disks today a disk with a bad sector should be discarded or returned to the supplier for replacement if it is guaranteed as being error free. Life time error free guaranties refer to the lifetime of the disk - not your lifetime or the life of your computer.

DISK WEAR AND TEAR

Wear and tear on a disk usually will show up on the bottom of the large center hole in the disk. This is where the disk drive clamps onto the disk while it spins the disk within the disks jacket. When the clamping action of the drive is still good, but the disk has been worn it will cause the disk to slip while it is spinning and will give you "read error" messages when trying to use the disk to read files. If a disk is slipping you won't get a "write error" generally because the data will be stored but fracked on the disk. Then when you ask the computer to read the stored data it will not be able to. There are many other reasons for read/write error messages of course. But the center hole on a disk is the main area that a disk will wear out first.

A perfectly good disk can be damaged by a scratch, dirt or exposure to a magnetic field after data has been stored on it. The best thing to do with a damaged disk is to scrap it. If you use a disk all the time like your boot-system disk, then it is a good idea to make a new copy about every six months and discard the old disk. Disks that are used for data storage normally never need to be replaced depending on the amount of use they receives, but like any other mechanical device they are subject to wear and accidental damage. Backup all disks containing important data at least with two

more disk copies (aka, BACKUP DISKS) and do this every time you change any of the data on the original disk.

Place a write protect tab over the notch on the side of the disk on all original distribution disks, program disks, systems disks and disks that have important data stored on them to protect against accidentally formatting them. If this notch (or black slide is in the position that the window is open on 3-1/2 disks) is covered you can still read any information on the disk, but you can not write to the disk or format it.

Next month we will cover the DIRectory command and it's functions.

NEWCOMERS SEEKING HELP AND FIRST THINGS TO DO

by David P. Miller

aka: the Midnight Bit-Fiddler and author of PostMaster.

FIRST THINGS FIRST

Welcome to the Newcomer's Corner! I appreciate the opportunity to contribute to this column which obviously will provide some direction for those having just acquired a new TRS-80, and may even cause some 'Ah-HAH's for a few old-timers. First, congratulations on your ownership of a TRS-80! If you have a Model I (battleship grey with separate keyboard), you own a machine with a fully matured software library. Hundreds of advanced programs were written for the Model I, and your computer will perform many tasks admirably. If you own a Model III (battleship grey with attached keyboard), you own a machine that will run almost all of the Model I programs, plus the Model III library of software, and with fewer mechanical problems. If you own a Model 4, 4D, or 4P (white case), you have a true 'state of the art' machine that can hold it's own against the 'blue clone' machines, can run almost all of the Model I/III software, and for which new software is still being developed.

The first thing to do before turning on your computer is to locate all diskettes that came with your machine, find those that have

preprinted disk labels, and place write-protect tabs on them. Include any diskettes containing programs of which you only have one copy. Do this now; you may have the only copy of a great program in existence, and the write-protect tab will help insure against its' loss. If this means you'll have to go buy some new diskettes, fine. The price of a box of diskettes can be much lower than the loss of a program! If you don't have any write-protect tabs, you can cut some 1 inch by 1/2 inch rectangles out of an ordinary sticky-back mailing label. These are placed over the notch on the upper right edge of the diskette when looking at the disk label.

The next step is to 'boot' up your machine. This operation was covered in detail by Art McAninch, Jr. in the December, 1990 issue of Computer News 80. I suggest you get a reprint if you don't have this issue (also get the January, 1991 issue.) At any rate, there are four steps to booting: (1) Make sure there are NO diskettes in any of the drives. (2) Turn on the power. (3) Insert your TRSDOS (or LS-DOS) diskette. (4) Press the reset button.

Note that step (1) is very important; a diskette can be damaged by turning on the power with a diskette in the drive, even if it has a write-protect tab. Write down the DOS name and version (it will appear on the boot up screen).

SEEKING HELP

One of the most common situations a new TRS-80 user encounters is when asking for help from a self-styled 'expert' that has experience only with 'clones'. The 'expert' sits at the computer, tries a few commands, gets a directory, and realizes that he or she is unable to get THIS computer to do anything. More than half the time, he or she will turn to you and say "This computer's broken!"

Actually, if you can get a disk directory, the computer is NOT broken; the commands are just different from what the 'expert' assumes is universal. Type 'LIB' and press the <ENTER> key to see a list of the commands your version of DOS supports. Also, you may have a help system installed on your disk, try typing 'HELP DOS' and pressing the <ENTER> key to see. If this doesn't work, don't panic; we'll tell you how

the commands work in this column.

The first thing you need to know about your computer is the drive assignments. Unlike CP/M or MS/DOS machines, which name their drives with the letters A to Z, TRS-80's number the drives from '0' to '7', with drive '0' being the boot and system drive. Turn on your computer with no diskettes in the drives. One of the drives will be selected; the light will come on. This is your 'boot' drive, and you will place the DOS diskette in it to start a session. What makes it the boot drive? Within the machine, each diskette drive has an 'address' of 0, 1, 2, or 3; this is the PHYSICAL address. Unless the configuration is changed via software, these are also the LOGICAL addresses used during operation of the computer. The drive assignments can be reviewed at any time by typing 'DEVICE (B)' and pressing <ENTER>. (LDOS, TRSDOS/LS-DOS 6.x and up only)

The system drive is ALWAYS drive '0'. It is called the system drive because the various parts of TRSDOS/LS-DOS must ALWAYS be present in the drive for the computer to work. Drives can also be RAM (memory) drives or hard disk drives. The physical addresses for these are separate from the diskette drives, and the logical drive assignments can be changed at will, allowing you to place any physical drive device into any logical slot as you wish.

-David P. Miller

Contribution articles to the New Comers Corner are always welcome. -CN80

SYMPHONY 90 EDITOR/COMPOSER

Manual and program are now ready for shipment.

\$ 39.95 plus \$ 4.00 S&H in the US.

Add \$5 S&H for APO,FPO,HI,AK, PR.

Add \$6 US funds for Canada.

All others add \$10US S&H.

Symphony 90 Music Library Catalog
\$3.00 S&H Included.

File Cabinet Update

As we reported in last months issue we are now mailing the Model 4 Library Catalog in printed form. So many found the printed catalog much more convenient than the catalog on a disk that we started to receive letters asking "Where is the Model 1/3 printed catalog?"

After thinking about it and realizing that it would take a long time to go through the Model 1/3 collection cleaning it up as we did the Model 4 collection, we decided to put the Model 1/3 catalog in printed form just as it is. But we are not mailing it to all the Model 1/3 disk catalog holders as we did the Model 4 catalog. The reason for this is because the Model 1/3 catalog is a limited issue printed in house, with a comb binder and covers. This makes it quite a bit more expensive than the mass printed Model 4 catalog. So for the time being at least, we will be filling requests by those of you who have a Model 1/3 disk catalog, but would like to have the convenience of the printed catalog to work with. Just drop us a card or a note and let us know that you would like to have your Model 1/3 disk catalog replaced. Subscribers who have not purchased a Model 1/3 catalog in the past, will have to send \$2 which really only covers the mailing costs.

The files in this collection are public domain and because they were collected by downloading the files from many bulletin boards and other sources, we can not guarantee that all will work properly on your system. That is the philosophy behind public domain programs, isn't it. Someone creates a superduper program that works perfectly on "his system" and then releases it into the public domain so that others can use it, knowing full well that they may have to modify or rewrite some portion of the program for "their" system. By releasing a program into public domain the author has given you the right to do just that. Many programs in this library will work without modification and have very good documentation with them. At a cost of 15 to 20 cents per program how can you go wrong giving them a try?

TRSDOS 1.3 FORMAT NOW AVAILABLE
The original Model 1/3 File Cabinet Library Volumes are on disks formatted single-sided,

single-density, 35 track and although this format can be read by almost any DOS, it can not be read by those using TRSDOS 1.3. If you are using that system on your Model III or on the Model 4 (in the three mode) you had to use the CONVERT command to transfer the files from the SS,SD,35trk format to a disk formatted using TRSDOS 1.3. This created so many problems for people who were unfamiliar with this procedure that we decided to offer the Model 1/3 catalog volumes already in the TRSDOS 1.3 format, at no charge. We have converted the entire Model 1/3 library, all 200 volumes, to duplicate master disks so you can now order them in that version. Of course you can still order them in the original SS,SD,35trk version. Just indicate which format version you want on your orders.

MODEL 1/3 VOLUMES ON 3-1/2" DISKS.

We will also supply the Model 1/3 volumes on 3-1/2 disks formatted in either TRSDOS 1.3 single-sided 40 track, or LDOS 5.3 double-sided 80 track disks at no additional charge. But the price per volume remains the same. There is really no advantage in using 3-1/2 disks formatted single-sided with TRSDOS 1.3 at 40 tracks per disk, or LDOS 40 track, except the added mechanical security that these disks provide, because they will not hold any more files than the 5-1/4 disks formatted to 40 track.

TRSDOS 1.3 will not support over 40 tracks, but LDOS will support double sided 80 track disks and that makes using the LDOS disk operating system (available from Misosys) for your Model III or 4 (in the 3 mode) even that much more attractive.

We will be adding many new programs to this library in the near future. Announcements of new programs available will be made in CN80 as before.

We hope that our efforts will be rewarded by bringing you the largest source of good programs for your Model III systems that is available anywhere. And we appreciate your continued support of our efforts.

MODEL 1/3 LIBRARIAN WANTED

If you have the time, the experience and the equipment to become the CN80 Model 1/3 Librarian send us a letter outlining your qualifications, and request for more details.

HINTS AND TIPS

POSTMASTER TIP

by William J. Newman

This is a tip using PostMaster only because I had a problem and reported it to David Miller.

I was using a JCL to establish all my icons and PostMaster on subDisks on my 15 meg hard drive. With so many icons on-line, I was running out of directory space so I had to use subDisks. My JCL ended with //EXIT. This was my error.

What was happening was the loss of the ability to save a PostMaster file to a disk after establishing it. The program would give me "Job done" when I hit <ENTER> indicating I did want to save the file. I thought I was doing something wrong. Actually I was. David Miller's reply follows.

"Did you do something wrong? Not really, but you did compound my error. The problem in saving parameter files from PostMaster is caused by the inconsistency in processing the <BREAK> key. I found it easier to look for the <BREAK> character (128) in some places, and used the SVC call provided in DOS in others. Since merely checking for the character doesn't clear the 'break bit' stored by DOS, it can be processed at an unexpected time; in this case the DOS KEYIN SVC is used to get the save file name.

Normally, this is not the problem, but since running PostMaster from a /JCL file, DOS is still looking for a <BREAK> to apply to it as long as the /JCL is active. To correct this, make sure the //STOP statement is included at the end of your /JCL file...."

So I learned my lesson. Use the /STOP at the end of the /JCL.

-William Newman

(Editors Note) A copy of the latest PostMaster Icon Volume is on its way to Bill Newman for this tip. The volume contains some of the newest fonts available in the Icon Library. You too can get a free disk of PostMaster Icons for your tip, just write it up and send it in on a disk in ASCII.

THE MODEL I CORNER

INSTALLING A SECOND DISK DRIVE IN A MODEL I

by David P. Miller

If this is your first TRS-80 hardware project, you'll find it well worth the investment, and relatively easy to do. These instructions will take you through the procedure step by step, and make the job as easy as possible.

First; the caveats and warnings: normal chip-handling procedures apply. I know; you're probably saying to yourself "The guy is already throwing high-tech lingo at me!" In this, as throughout the rest of the instructions, I'll explain any phrase like that one if I have to use it. Chips can be damaged by static electricity. The amount of static charge that can completely destroy a chip is so small that you wouldn't feel it. Normal chip handling procedures are designed to minimize the possibility that enough static electricity will be discharged to cause such damage. These procedures are:

(A) UNPLUG ALL POWER CABLES BEFORE STARTING! Sorry I shouted there, but failure to do this can hurt you, and I want all our TRS-80 users to keep on computing for years to come.

(B) work in a room without carpeting. As everyone knows, carpeting can build up a charge that can give you a real 'jolt' if you then touch a lamp base or a screw in a switch plate.

(C) ground all objects you're working on. This means that every piece of equipment you're going to touch or put together should be electronically attached to each other. By placing a sheet of aluminum foil on the table before starting, and placing your work on top, all static is discharged before you touch anything.

(D) avoid excessive handling. The more a static-sensitive device is handled, the odds of causing damage grow. Try to get it right the first time by being careful.

(E) don't get up until the job is done. Getting up and moving around can build up that dreaded static charge. If you have to get up, touch the aluminum foil first when

you come back.

Now the caveat: Computer News 80 and David P. Miller are not responsible for any loss or damage, consequential or incidental, resulting from following these directions, or from the installation thereof.

That's just to keep everything on an even keel; CN-80 and I have done the best we could to ensure this information is accurate and complete, and you really shouldn't have any problem if you use common sense and follow the directions.

Now onward and upward:

THE FLOPPY DISK CONTROLLER

If you already have a floppy disk on your TRS-80, you shouldn't need to bother with the controller; it's already installed and you know it works, and up to four drives can be attached to it. Since Expansion Interfaces to contain the controller and the controllers themselves are no longer being manufactured or sold, the possibilities of new installations are none or less.

In fact, the only reason to open the Expansion Interface would be to install a 'doubler', allowing 180K storage per disk instead of the original 100K possible on a single-density disk. At the time of this writing, the only doubler still available was the Aerocomp Double Density Controller, which comes with full installation instructions. Follow their instructions with the chip handling procedures already outlined, and you'll have no problems.

ADDING A FLOPPY DISK DRIVE

Parts Required:

The new diskette drive.

A diskette drive case with power supply.

Mounting screws.

TOOLS REQUIRED:

A Phillips (cross-tip) screwdriver.

Small needle-nosed pliers.

You may also wish to have a standard (flat-tip) screwdriver on hand.

THE DRIVE CABLE

Pull the drive cable loose from the rear of the existing diskette drive(s). Looking into the connector, you'll probably notice several pins missing. (If not, skip this section and go on). These missing pins were used by

Radio Shack for drive addressing and presumably to save costs. You can use the old cable, but are restricted to attaching them in order as drive 0, 1, 2, and 3 as you get farther from the computer. By obtaining a new cable with all the pins in place, you have the option of moving your drive around on the cable (with the exception of the last drive on the chain), but would not be able to use original Radio Shack diskette drives, as they have no internal addressing.

Please note that the drive farther from the computer on your cable is likely to contain the required resistor pack needed on the final drive. Your new drive must be inserted closer to the computer, shifting the current last drive farther down the chain by one. If this drive is an original Radio Shack drive and the connectors all have the missing pins, the new drive address is automatically selected when you plug it in. If all pins are present on all connectors, addressing will be accomplished by changing the drive select jumper on the drive (more on that later). If your cable contains a combination of the two, Radio Shack drives MUST be attached to connectors with missing pins. If this is not possible you must either get a new cable or replace your Radio Shack drives, or both.

ADDRESSING YOUR DRIVES

Examine your new diskette drive and its accompanying instructions. Somewhere on the drive's circuit board will be a set of pins marked DS0-DS3 or DS1-DS4. On rare occasions drive will only have two DS sets, limiting their use to drive 0 or 1. These correspond to the four possible positions on the drive cable, counting from the drive connector closest to the computer. Place a jumper on the two pins corresponding to the position in which you wish to install the drive on the cable. Do the same with all non-Radio Shack drives you will be shifting along the cable. While you've got the drive in hand, locate the pin nearest the number '1' marked on the card-edge, and use a felt-tip marker to put a dot on the edge of the board. This will assist you later in properly orienting the cable connector.

INSTALLING YOUR DRIVES

This is the easy part! Remove the screws attaching the cover of the case to the base. There are usually two screws along the bottom on each side, and may be two on

each side near the back at the top. Lifting up the case, you should notice a cable coming from the power supply with three or four wires (usually red, black, and yellow). This is the power cable for the diskette drive. Set the new drive on its left side (looking at the face) into the base. The screw holes on the drive should align with the mounting holes in the base. Install the two mounting screws, then plug the power cable into the matching receptacle on the drive. The power cable will only go on one way.

Next, look for a 34-pin ribbon cable leading from the rear of the case and protruding inside toward the disk drive. If you have none, you'll have to obtain an 'extender' cable to reach from the drive to the opening at the rear of the case, or insert the TRS-80 cable into the case to connect the drive. Either way, attach the cable to the card-edge at the rear of the drive. If your cable connectors are 'keyed' they will only go on one way. If not, make sure that the edge of the cable with the colored strip matches the mark you made earlier. Now slide the cover carefully back onto the case and replace the screws. You've just added a disk drive to your Model I!

-David P. Miller

CHANCE IT - A GAMCO REVIEW

by Dale Hill

Our 3rd grade daughter struggles with reading. All of our other children were able to use phonics to unlock words and read proficiently by their middle school years. Drema has to work at it. Any time words begin to get big and compound, her inability, like the words themselves, compounds considerably. With a 3rd and 4th grade reading designation, I thought maybe "Chance It" might be just what I was looking for as a remediation program for our daughter. Well, "Chance It" is good, but it is not the answer.

According to the supplied information, "Chance It" consists of 50 paragraphs which the child can read and then must answer a

question concerning the paragraph. The questions ARE always the same for every paragraph, though the paragraphs do come up randomly. The format of the program is gamey, in that the players can take a chance at getting a free marker or loosing one. Five game markers on the board establishes a winner.

Upon booting and after the first couple of screens, two players may choose their marker. Four choices of TRS-80 graphic markers are presented, with two of them looking like aliens and the other two like Monopoly pieces. Players may choose to "Chance It" or read a paragraph. If they read a paragraph and get the answer, then they can place a marker on the game board. Unfortunately, their marker bounces around the board and if they press the space bar at the wrong time, they can end up on top of one of their own markers and gain nothing. On the other hand, the new marker may knock off one of the opponent's markers.

"Chancing It" the player may gain or loose a marker or cause their opponent to randomly gain or loose a marker. If a student "Chances" all the time, a game can actually be won by having to read only one paragraph, but generally that is not the case. Now for the nitty-gritty.

Though the program is listed as 3rd or 4th grade level, it is probably closer to 4th and 5th. Why? First of all, the paragraphs are often difficult and a bit dry. Long words causes the third graders to stumble. The basic rule of thumb is if a child stumbles over five or more words on a page, that text is too hard for them. Well, a third grader will find 3 or 4 words on a screenful to stumble over using this program.

Not only that, since only one question is generated per paragraph, once the paragraph is read, reading comprehension will not necessarily be reinforced by the passage. Another real problem with this game is that the outcome of the program cannot be manipulated by either player, and thus grandpa or dad may not be able to allow their discouraged counterpart to win. Do you know what I mean? All kids like to win and feel successful, especially on things that are hard; and some of these paragraphs are hard to read. All it takes is one win by grandpa, and grandchild will say, "But I do

not want to play." Thus, an adult player should be discouraged from "Chancing It" too often, or the control of the outcome could become "Chancey"

At the same time, one of the good things about having the same paragraphs and questions come up randomly is that it gives a struggling reader a "Chance" to learn the new words and a "Chance" to always come up with a winnable question.

I like "Chance It" and find that it will probably help our daughter learn to read better. I wish that the paragraphs were less factual and more readable. I wish, too, that each paragraph offered 1 out of 3 random questions at a time and that the program were a bit more remedial for 3rd graders.

Would I buy it? Sure. In fact, generally, teacher's "Chance" little when they look to GAMCO for classroom products, and now, through CN-80, parents have a "Chance" to get some of the same software for home use.
-Dale Hill

(You will find a full list of available GAMCO products listed in CN80 Vol. 4 No. 4, along with the special discounts to CN80 subscribers, or write to CN80 for a free program listing and discount sheet.)

INSTALLING DISK DRIVES IN A TRS-80 Model III/4

by David P. Miller

First; follow the set up procedures outlined in the article for adding drives to the Model I on page 24 before you start to work.

THE FLOPPY DISK CONTROLLER

If you already have a floppy disk on your TRS-80, you shouldn't need to bother with the controller; it's already installed and you know it works, and up to four drives can be attached to it. If not, the job becomes a little more complex; you'll have to completely remove the main motherboard to install the new controller. Controllers for the Models III/4 are identical and installed in the same way. Install your controller at the same time you install your disk drives;

by reducing the number of times you open the computer and handle the components inside, you reduce the possibility of inadvertently causing damage to the computer.

New controllers come with excellent installation instructions; if you're installing new disk drives on a system that does not already have any, you'll also need the disk drive kit with 'towers'. Towers are the metal structures that hold the drives in place. The kit also comes with a power supply to power the drives. Follow the instructions provided with the controller/drive kits using the chip handling procedures already outlined, and you'll have no problems.

ADDING A FLOPPY DISK DRIVE

Parts Required:

The new diskette drive.

Mounting screws.

A 34-pin cable with all pins connected may be required. Since these are not particularly expensive, we suggest you get one before starting work. Although you may not need it, the additional aggravation in not having one if you do while your computer is spread out on a table, is worth the insurance.

Tools Required:

A Phillips (cross-tip) screwdriver.

Small needle-nosed pliers.

Cutting Dikes.

You may also wish to have a standard (flat-tip) screwdriver on hand.

OPENING THE CASE

Unplug the computer and let it sit for at least two hours with the power switch on before disassembling it. Clear a good work space twice as wide as the computer. Get a paper cup to hold screws in while the computer is disassembled (two if you're installing a controller). Remove the screw from the rear center of the case, then tip the case away from you, watching the power cord to prevent excessive binding. You'll find three screws along the front edge of the keyboard, one on each side of the front feet, and six more around the edge towards the rear of the computer. The screw on the bottom left corner, when looking at the bottom of the computer with the keyboard at the top, was covered by a plastic seal when the computer left the factory. Breaking this seal voids all Radio Shack warranties that may be in effect (hah!)

Remove all these screws and place them in the paper cup out of the way. Carefully tip the computer back toward you until it is once again in normal operating position.

Now bend over the computer and peek through the ventilation slots. You'll see the neck of the CRT tube at the left rear, near a long thin metal box that runs across the back of the computer. Being careful not to hit anything with the CRT tube, lift the entire case straight up off the base of the computer, rotating it to the left as it comes clear. The CRT assembly is connected by cables at the left side. Set the CRT assembly to the left of the computer. With your hands in your pockets, look into the CRT assembly. You will see a thick cable leading from the side of the CRT to a transformer. **NEVER TOUCH THIS CABLE!** The cable you are looking at carries several thousands volts and can hold a charge long after the computer has been turned off. This is why we let the computer sit; to allow the charge to dissipate. Carefully disconnect the cables from the CRT board, and move the CRT assembly to a safe place until you're done with the drive installation.

INSTALLING THE TOWERS

On the right side of the computer base, you will see an empty area framed by two ridges, each containing a pair of screw holes. Place the towers on the ridges to match up with the screw holes and install the screws tightly. If you have been supplied with a power supply that includes a transformer and screws, the transformer will be installed between the towers just behind the keyboard with the screws extending through the ventilation slots on the bottom of the computer. The power supply board will most likely be installed on the left side of the leftmost tower, and may be attached when you receive the towers. Attach the electrical cables as the kit instructions specify.

INSTALLING THE CONTROLLER

Turn the computer around so you are faced with a featureless metal box. This box contains the main computer board (mother board). Remove all the small screws on the right side facing you, and along the top and left side of the metal box. The cover can now be removed by pulling it up and slightly to the left. Remove all cables from the mother board, noting their position. You

may wish to draw a diagram first, or use some type of labels to mark the cables and their positions. Now place a sheet of aluminum foil on a large, flat area out of the way to set the mother board on once you remove it. Looking at the mother board, you will see several screws around the top, bottom, and sides, about 1/2 inch from the edge. Remove all these screws and place them in the paper cup. The mother board should now come out easily. Handle this board by the edges as you would a record. No force should be required when removing the board. Place it on the aluminum foil until you are ready to re-install it.

Looking into the space behind the mother board area, you will see a recessed portion of the box with mounting posts. The right side of this area is reserved for a serial communications board; the left is the space for the diskette controller. The controller will be installed with the power connector at the top, and the thin ribbon cable towards you. Install the controller board securely, routing the thin cable out the top of the box. Attach the power cable to the connector, and re-install the mother board as it was originally. The card-edges will match the cutouts on the bottom of the case. Double-check all cable attachments to the mother board, including the keyboard cable on the side.

Now grasp the thin ribbon cable coming from the controller board and carefully line up the pins with the contacts of the matching connector at the top of the mother board. If the pins are properly aligned, the connector should slide almost all the way to the plastic coating of the cable. Rotate the computer back around until the keyboard is once again facing you.

THE FLOPPY DRIVE CABLES.

If you are not installing a controller, open the computer as explained above. Examine the drive cable if it is not a new one you have just obtained, or if you got it from Radio Shack specifically for the Model 4. Looking into the connectors, you may see several pins missing. If this is the case, you MUST install drive '0' on the bottom, and will not be able to use double-sided drives. Double-sided drives are supported by LDOS, TRSDOS/LS-DOS 6, and several other Disk Operating Systems, but are not supported by TRSDOS 1.3, the Model III Disk Operating

System. To obtain double-sided operation and control over your drive placement, you will have to have a cable with all the pins installed in the connectors. Such a cable will not, however, work with standard Radio Shack disk drives; these drives are selected by the missing pins.

Attach the cable to the connector at the top of the controller. The connector with all pins in place (Radio Shack cable) or on the other side of the cable from the other two connectors will be attached to the controller. Attach it so the drive connectors will be facing you when the cable is draped down over the metal box and between the drive towers, and the color stripe on the edge is to the right. Now take the diskette drive you will be installing, and examine the circuit board and any accompanying instructions to locate the 'Drive Select' pins, usually marked 'DS0-DS3' or 'DS1-DS4'. On some drives, you may only have two selections. Make sure the jumper cap is on 'DS0' for the bottom drive and 'DS1' for the top drive. (If the selections start at 'DS1', add one to each of the above). If you are adding a drive to a single-drive computer, the older drive should remain on, or be moved to the bottom slot.

Slide the bottom drive into place, plugging in the ribbon cable from the controller and the power cable. The power cable will only go on one way. If the ribbon cable does not contain a small tab between two of the pins inside, match up the color stripe along the edge with pin '1' marked on the drive circuit board. Match up the holes on each side of the drive with the mounting holes of the drive towers, and install the mounting screws, making sure the top of the drive is as close as possible to 5 3/4 inches from the outer tower-mounting screw. Repeat the procedure with the top drive, measuring about 11 inches from the outer tower-mounting screw to the top of the drive.

Retrieve the cover and CRT assembly, and if the drive covers have not been previously removed, cut the tabs holding the plates in place and remove the plates. Set the CRT assembly to the left of the computer. Replace the metal case over the mother board, aligning the holes on the left side with the raised guides, and put the screws back in their original positions. Be careful

in replacing these screws, as the metal is easily stripped. Now attach the CRT cables to the CRT board, ground cable first.

Take a break and relax a little; you're almost done and there's no point in being tense at this point.

Now make sure the power switch is off and plug the computer in. Check the drives to make sure no packing cardboard is in them, and turn on the computer, **STAYING AWAY FROM THE INSIDE OF THE CRT ASSEMBLY!** The light on the bottom drive should light up (this may not happen on some 3.5 inch drives). If all seems well, slide your diskette into the bottom drive and close the latch. If not, turn off the power and check your work. TRSDOS should boot up from the diskette. Answer any date and time prompts, using 12/31/87 if necessary. Type in 'DIR :1' and press <ENTER> to see if the top drive light illuminates. Remove the diskette and shut off the power.

If everything checked out as described above, you have correctly installed the equipment. Otherwise, check over your work. Unplug the computer and come back in two hours to let the CRT static discharge itself.

Carefully pick up the CRT assembly, rotating it over the computer, and peek through the ventilation slots. Watch carefully as you slide it down over the computer to ensure the neck of the CRT does not hit anything. Once the case is correctly seated on the base, examine the position of the diskette drives. They should be properly positioned in the bays to match up with the openings in the case. Re-install the short black metal screw in the rear of the computer and lift up the front until the bottom is facing you. Replace the three screws along the front edge of the keyboard, the two machine screws near the front feet, and the metal screws around the bottom and lower sides. Sit back and take another break, and wipe off the sweat; you're done!

-David Miller

(Editors Note) Please do not confuse this article on adding drives to your Model III or 4 with replacing existing drives. The replacement of existing drives is a very simple procedure, and not involved at all. But you do need to obtain a floppy drive

cable with all 34 pins connected. All newer drives sold now are half-height, double-sided drives and require a cable with all 34 pins connected. (Available from CN80 for \$10 + \$2 S&H.) If you have an older model computer you may need to specify that it has the 34 pin edge card type connector on the mother board, otherwise we would send you the standard 34 pin type connector which was used on all later model computers. It is still not recommended to install more than two drives internally in your computer without installing an exhaust fan too.

When replacing full height-drives with half-height drives you will need to use a filler plate, or rig some method of filling the drive opening in the case yourself. The best filler plates we have ever found are available from Joseph L. Zanetti, 307 Morton Ave. West Berlin, NJ 08091 for \$9.95 a pair \$2 S&H, he will also send you a set of Metric Screws if you add .50 cents to your order. -CN80

OPEN FORUM

LTR: As a recent (pleased) subscriber to CN80, mainly interested in equipment maintenance, I would like to tell the Open Forum about a simple, yet very effective solution I've discovered for the frequent contact-corrosion problems of TRS80 Models III & 4 keyboards. In my view, the method is far superior to those previously described in CN80.

Although one part of the procedure--a waiting period during which nothing good seems to be happening--might seem a bit scary the first time you try it, the results are worth the anxiety. Best of all, there is no need to remove the case or keyboard, and only the following two items are needed to make the procedure a breeze:

First, a permanent tool (or "grabber") for removing the key caps without a struggle. This gem is easily made from a thin strip of brass, 12" long by 1/2" wide (obtainable from a Hobby Shop). Put the strip in a vise and, at each end, bend the ends into tiny right-angle lips (no more than 1/16" deep). Be sure the lips are bent in the same direction from the same side of the strip.

Next, bend the strip in the middle of its length to form a slim "U," with the lips aligned and facing each other.

To remove a key cap, simply slide and hold the "grabber's" lips under the cap; then, with your other hand, insert a screwdriver or other slim tool into the "U" and rap it sharply upward. Presto! Off will pop the cap. Neat, huh?

Next, from a professional electronics shop (not Radio Shack), obtain a can of freon-based contact cleaner, preferably: FREON TF Micro Molecular FD Contact Cleaner (zero residue, non-flammable, safe for plastics) Stock #1638-24S. Made by TECH SPRAY, P.O. Box 949, Amarillo, TX 79105

Procedure: With the computer OFF, remove the caps from troublesome keys; then give the keys three shots of contact cleaner while working the key posts up and down. Freon cleaner will penetrate the key casings, so continue to work the posts up and down for about three minutes. Then--and this is most important!--stop work and go get a cup of coffee or something. In other words, patience is now required, so don't do another thing to the keys for at least fifteen minutes.

When you return, turn on the computer, boot up your wordprocessor, and get yourself a blank screen. Now comes the scary part. Work the key posts up and down. Chances are they'll play dead and nothing whatever will appear on the screen. BUT DON'T WORRY! You haven't ruined the keys! All you did was give them an anesthetic, and they're still asleep. So be patient! Give 'em a little more time (maybe ten minutes), and keep working them up and down, this time a bit harder.

Then, all of a sudden, as if by magic, the dead keys will come alive and begin to function--better than ever! Believe me!

Now then, in return for this valuable information, and since there is no competent TRS80 service technician anywhere in my area (Radio Shack? Forget it!), I hope someone in the forum will provide me with a solution to this very different problem -- a nagging malady that has beset my early (non-gate array) Model 4:

Each day, the machine refuses to boot up (no matter what system disk: DOS PLUS, LS-DOS, or TRSDOS) until it has been turned on and warmed up for five to seven minutes. After that, the RESET switch sets things right, and the machine functions normally throughout the day; even when turned off for several hours, then back on again.

Is there an answer for this or is it a mystery I'll have to live with?

-C. P. San Clemente, CA

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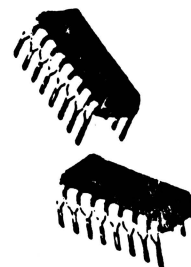
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CN80 suggests that you contact these people by mail or by phone to discuss your problem or project and payment terms prior to any shipments of equipment. Please understand that this is not an endorsement by CN80 in anyway as to the abilities of the individuals who are listed in this section.

#####



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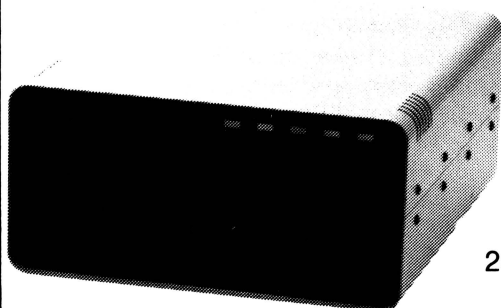
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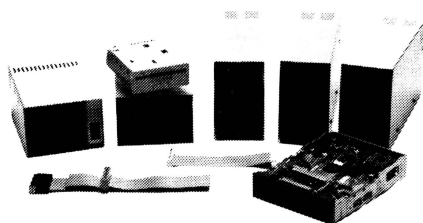
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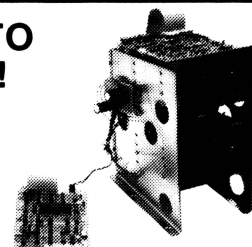
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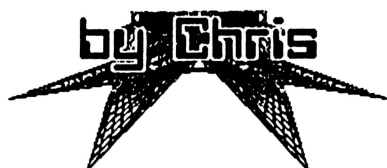
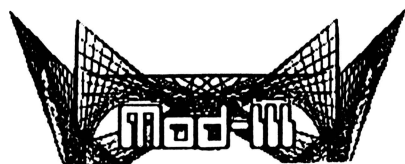
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Books by Christopher Fara

MOD-4 by CHRIS for TRS/LS-DOS 6.3, 232 pages each \$24.95
MOD-III by CHRIS for LDOS 5.3, 234 pages any two \$39.95
MOD-III by CHRIS for TRSDOS 1.3, 210 pages any three \$59.95

Complete Owner's Manuals for Models 4/4P/4D and Model III, fully updated for all current DOS versions. These beautifully designed books replace obsolete and confusing Tandy and LDOS manuals and addenda. Mod-III editions combine both the "Basic Operations" and "Disk System" manuals in one book. Mod-4 edition has chapters on DOS SuperVisor Calls, previously not accessible without a separate "technical" manual. And no more fumbling between pages: each subject is contained under a logical, bold heading on one page or on pages facing each other, with plenty of blank spaces for notes.

Written in plain English, the manuals are better organized, with more and better examples for the use of DOS, JCL and BASIC; include chapters with examples on interfacing of DOS and BASIC with assembly language; describe in detail popular ROM, RAM and DOS subroutines; and provide lots of useful extra information never before published in the Model III and Model 4 manuals.

"... no matter how long one is using a system, there will be times to look up the manual ... nothing easier than looking into Chris' comprehensive, beautifully arranged and printed treatise ... the organization is exceptional good ..." (review by Henry H. Herrdegen)

"... excellent alternative ... not only does it offer information I have not been able to find in the regular BASIC manuals, it explains in better detail what some of the more arcane commands are good for, or not good for ... here is a manual where you can find it all ..." (review by Henry A. Blumenthal)



JCL by CHRIS 30 pages

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Job Control Language for Mod-III LDOS and Mod-4 TRS/LS-DOS doesn't have to be so confusing as the 'official' manuals made it. This remarkable, well-organized booklet includes step-by-step explanation how to design, build, DO and compile JCL files, plus a description of other JCL features, and a reference section with examples. We've got rid of the jargon and JCL turns out to be simple, easy, useful and fun.

"... the investment for this instruction booklet was small compared to the welcome education on the expanded use of my computer ... thanks to Chris and his way of explaining things in a simple and logical fashion ..." (Ray Stanley)



Z-80 TUTOR I	Introduction, 39 pages	\$9.95
Z-80 TUTOR II	Toolbox, 33 pages	\$9.95
Z-80 TUTOR III	Applications, 37 pages	\$9.95
Z-80 TUTOR X	Reference, 63 pages	\$12.95

Assembly language tutorials, developed from Chris' popular essays in *Computer News 80*. The series takes the reader from a fresh look at the assembly basics, through useful programming tools, to complete applications such as disk file handling and BCD math. Includes over 80 practical subroutines, many not published before, for all kinds of typical programming chores. Volume X is a detailed cross-referenced description of all Z-80 instructions, timing, registers, and flags.

"... highly readable ... I realized how much I had been missing in Edtasm manual ..." (review by Jane A. Layman)

"... somehow Chris Fara manages to bring the subject down to earth ... explains simply and effectively ... in clear, concise and, most importantly, in plain and easy to understand English. Now, that's impressive ..." (Lance Wolstrup)

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Report generation:

Report generation incorporates a great deal of flexibility. Your report presentation is totally customized through print definition formats which you define on the screen as easily as you define the input/update screens. You can truncate field data or strip trailing spaces. You control exactly

where you want each field to appear. LB provides for a report header complete with database statistics: database name, date, time, and page numbers. A report footer provides subtotaling, totaling, and averaging for dollar, floating point, and calculated fields; print number of records printed per page and per report. Attach any of the ten index files and you control exactly what records get printed; even a subset of indexed records can be selected for printing to give you a means of recovering from that printer jam halfway through your 30-page printout. You can even force a new page when the key field of an index file changes value. Up to ten different printout definition formats can be maintained for each database. Reports may be sent easily to a printer, the console display screen, or to a disk file - useful for subsequent printing or downstream data export to other programs. Report formatting allows for multiple across mailing labels, multiple copies of the same record, or even printing one record per page for sales books. You can easily generate mail/merge files of address or other data for your word processor. Or you can use LB's built-in form letter capability.

Automatic operation:

For automating your processing needs, LB can be run in an *automatic* mode, without operator intervention. Frequently used procedures can be saved by LB's built-in macro recorder for future use. Entire job streams may be produced, so that LB operations may be intermixed with literally any DOS function that can be *batch* processed.

Maintenance utilities:

To make it easy for you to grow your database as your data needs grow, we provide two utility programs for managing your database. One allows you to construct a new database with an altered data structure and populate it with data from your existing database. Another allows you to duplicate your database structure, copy or move records from one to another, or automatically purge un-needed records.

Help is on the way:

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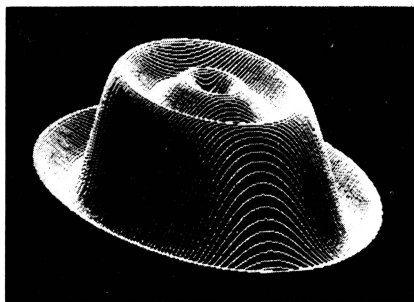
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Purchase a Grafyx Solution Hi-Res Graphics Board for \$ 99.00 and receive a free copy of DRAW a powerful graphics program which allows drawing or designs to be easily created on a Model III/4/4P/4D. Payment may be by check, Visa/MC, or COD. Domestic shipping is free on pre-paid orders. Texas residents add 7% tax.

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for Hi-Res TRS-80 Model 4 (tm) and minimum 360k Disk

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Users all over the United States, Canada, England, Germany, Australia, and Holland have sent glowing reports of their satisfaction with PostMaster.

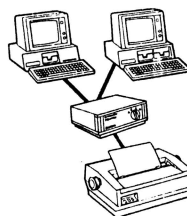
The following printers are recommended for use with PostMaster: Tandy DMP-130/103A/131/132/133/430/2100P; all Epson (MX requires Grafix); IBM CPS & Graphics, Okidata Microline 182/192; Panasonic KXP-1091, 1092, 1124; Star Gemini 10X/15X/MP/NX; C.Itoh 1510/8510/C310; Seikosha SP-2000. Other printers providing 'IBM' and 'Epson' emulation are or can be supported.

The following printers are not currently supported: Tandy DMP-110, -120, 400/500, -2100; Okidata 82, 92; Daisy wheel printers, Laser Printer 'native' modes.

Minimum requirements are: 64K Model 4/4D/4P, LSDOS/TRSDOS 6 (tm), high-resolution graphics board, 2 disk drives (minimum 360k on-line), printer capable of 'double-density' bit-image graphics.

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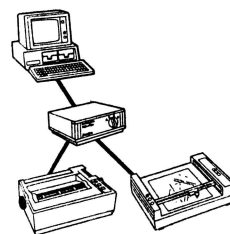
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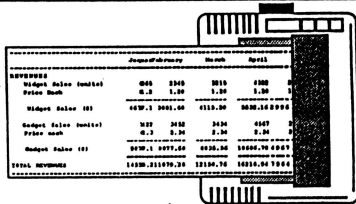
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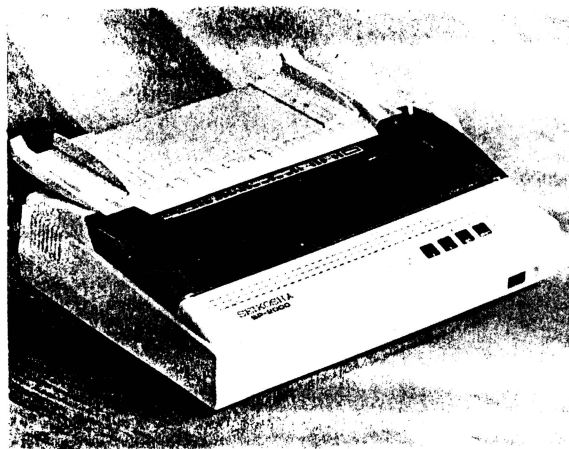
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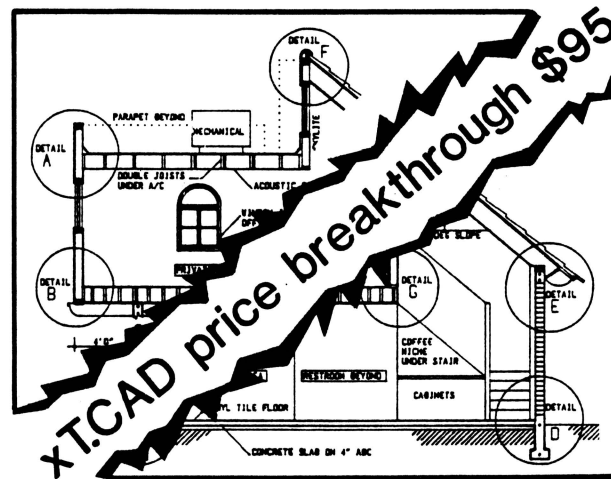
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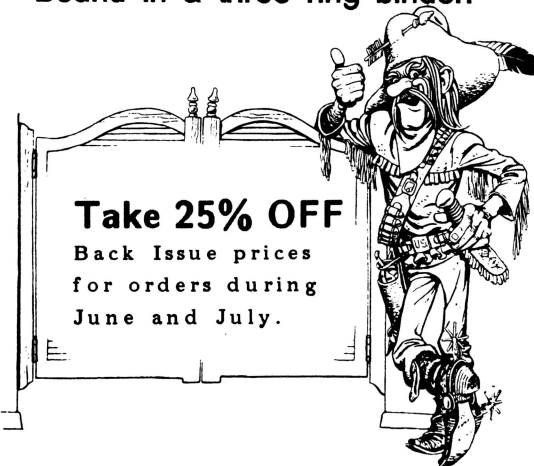
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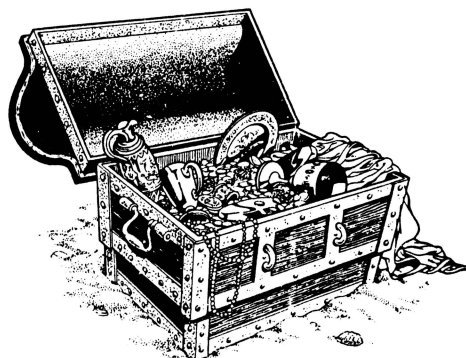
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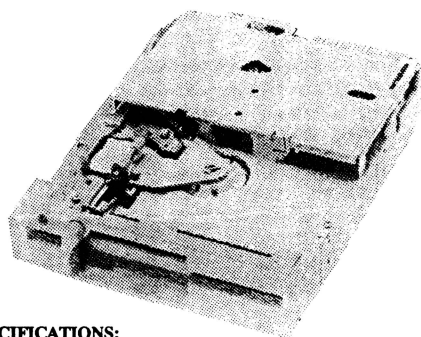
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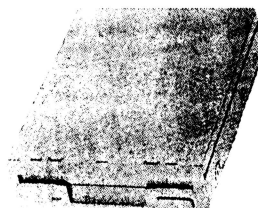
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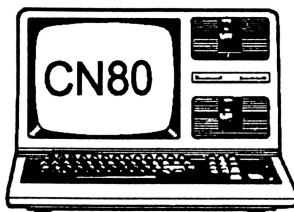
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